



Item 86200

## Compact Tool Carrier Skid Steer Loader Owner's Manual



### **WARNING**

This Compact Tool Carrier is intended for OFF ROAD use ONLY. It is **NOT** intended for use on public roads or highways. Always using an approved hard hat and other personal protective gear **COULD SAVE YOUR LIFE!**

Federal, state, provincial, and municipal governments have different regulations pertaining to operating off road vehicles. Learn and follow the regulations in your area.



### **WARNING**

**READ AND UNDERSTAND THIS INSTRUCTION MANUAL  
PRIOR TO USING THIS PRODUCT. FAILURE TO DO SO MAY  
RESULT IN SERIOUS INJURY OR DEATH.**

Keep this instruction manual for future reference.

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## GENERAL

This instruction manual is intended for your benefit. Please read and follow the operating safety, installation, maintenance and troubleshooting steps described within to ensure your safety and satisfaction. The contents of this instruction manual are based upon the latest product information available at the time of publication. The manufacturer reserves the right to make product changes at any time without notice.

The safety instructions provided in this manual are not intended to cover all possible conditions and practices that may occur when operating, maintaining and cleaning power equipment.

Always use common sense and pay particular attention to all the DANGER, WARNING, CAUTION and NOTICE statements in this manual.

### WARNING SYMBOLS AND DEFINITIONS

|                                                                                                  |                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death. |
|  <b>DANGER</b>  | Indicates a hazardous situation which, if not avoided, will result in death or serious injury.                                                                                     |
|  <b>WARNING</b> | Indicates a hazardous situation which, if not avoided, could result in death or serious injury.                                                                                    |
|  <b>CAUTION</b> | Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.                                                                                   |
| <b>NOTICE</b>                                                                                    | Addresses practices not related to personal injury.                                                                                                                                |
| <b>CAUTION</b>                                                                                   |                                                                                                                                                                                    |

### INTENDED USE

The Compact Tool Carrier consists of a hydraulically operated, track-driven, self-propelled base machine which is intended to be used off road for earth-moving, landscaping, and construction. The machine is designed to operate a variety of attachments, each of which perform a specialized function. Small enough to fit through gates and into narrow areas where small size is needed, the machine has a radial lift arm making it ideal for grading, digging, back-filling, and unloading flatbed trailers. This equipment is designed to be operated in ambient temperatures consistent with work typically experienced in earth moving and construction environments (-18 to 38° C / 0 to 100° F). Provisions may be required for operation in extreme temperature environments. Operation should only be performed by persons of sufficient skill, experience and judgment. To ensure optimum performance and continued safety, **USE ONLY REPLACEMENT PARTS AND ATTACHMENTS DESIGNED FOR THIS MACHINE.** Replacement parts, accessories or attachments made by other manufacturers could be dangerous and void any product warranty. Carefully read and follow the information in this manual to learn how to operate and maintain the machine and to avoid equipment damage and personal injury.

### SPECIFICATIONS

| Specification                                        | Value                                        | Specification                 | Value                                               |
|------------------------------------------------------|----------------------------------------------|-------------------------------|-----------------------------------------------------|
| Machine Model                                        | 86200                                        | Bucket Volume (Heaped)        | 0.080 m <sup>3</sup> (2.85 ft <sup>3</sup> )        |
| Machine Mass (less oper.)                            | 600 kg (1323 lbs)                            | Hydraulic Sys. Pump Flow Rate | 5 GPM @ 3000 RPM (6.3 ml/R)                         |
| Total Length                                         | 2500 mm (100 in.)                            | Engine Type                   | Single Cyl., 4-Stroke, Air-Cooled, OHV, Elec. Start |
| Total Width                                          | 1025 mm (40.5 in.)                           | Engine Displacement           | 420 cc                                              |
| Total Height                                         | 1300 mm (51 in.)                             | Engine Max RPM                | 3600 RPM                                            |
| Track Width                                          | 965 mm (38 in.)                              | Engine Idle Speed             | 1800 RPM                                            |
| Clearance Between Tracks                             | 660 mm (26 in.)                              | Engine Theoretical Horsepower | 15 HP                                               |
| Ground Clearance                                     | 130 mm (5 in.)                               | Engine Fuel Type              | 87+ Octane Unleaded Gasoline                        |
| Track Size                                           | 150 x 72 x 36                                | Engine Fuel Capacity          | 6.5L (1.72 Gal)                                     |
| Rated Operating Capacity: (Bucket, 35% Tipping Cap.) | 200 kg (440 lbs)                             | Engine Oil Capacity           | 1.1L (1.1 Qt)                                       |
| Tipping Capacity:                                    | 570 kg (1250 lbs)                            | Engine Oil Type               | 10W-30 @ >32°F / 5W-30 @ <10°F                      |
| Min. Turning Clearance                               | 1320 mm (52 in.)                             | Engine Spark Plug             | F7TC, F7RTC or equivalent                           |
| Max. Drive Speed                                     | 6.2 km/h (3.85 mph)                          | Engine Spark Plug Gap         | 0.7-0.8 mm                                          |
| Max Lift Height                                      | 2105 mm (83 in.)                             | Engine Spark Plug Torque      | 18-22 N-m                                           |
| Hydraulic Sys. Oil Volume, Incl. Tank                | 25 L (26.4 Qt)<br>ISO 32 (10W)               |                               |                                                     |
| Hydraulic Sys. Pressure                              | 25 Mpa                                       |                               |                                                     |
| Hydraulic Sys. Pump Type                             | Gear Pump                                    |                               |                                                     |
| Bucket Volume (Struck/Level)                         | 0.075 m <sup>3</sup> (2.65 ft <sup>3</sup> ) |                               |                                                     |

## UNPACKING & INSPECTION

When unpacking, please inspect the product carefully to ensure the product is intact and undamaged. If any parts are missing or broken, please call 1-800-386-0191 as soon as possible.



**WARNING** Do not use this product if damaged during shipment, handling, or after misuse.

Do not use the product until the parts have been replaced or the fault rectified. Failure to do so may result in serious personal injury or property damage.



**WARNING** The machine and its parts are heavy. It is recommended a minimum of two people are needed for unpacking, lifting, moving, and assembling.

Follow proper lifting techniques at all times as recommended by the Occupational Safety and Health Administration.

Remove the parts and accessories from the packaging and inspect for damage. Make sure that all items in the contents are included.

## SAFETY

### WORK AREA SAFETY

- Assemble, adjust, and operate in a safe work environment. Keep your work area clean, well-lit and free of distractions. Place lights so you are not working in a shadow.
- Keep anyone not wearing appropriate safety equipment away from the work area.
- If working alone, always arrange to have someone check on you at pre-arranged, regular intervals.
- Do not allow children or pets in the work area, and do not allow children or pets on or near the equipment.
- Do not use in the presence of flammable gases, dust, or liquids.



**WARNING** There may be buried utility lines in the work area. Digging into them could cause a shock or an explosion, resulting in death or serious injury. Have the work area marked for buried utility lines and DO NOT dig in marked areas. Contact your local marking service or utility company to have the work area marked. In the US, call 811 for marking service, or in Canada, visit [www.clickbeforeyoudig.com](http://www.clickbeforeyoudig.com) and follow the links to visit the local damage prevention center website to place a marking request for your region.

### PERSONAL SAFETY

- Wear Personal Protective Equipment (PPE) approved by the American National Standards Institute (ANSI) or the Canadian Standards Association (CSA).
- Always wear impact safety goggles or eye wear that provide front and side protection for the eyes. Eye protection equipment should comply with ANSI Z87.1 or CSA Z94.3-07 standards based on the type of work performed.
- Wear hearing protection with an appropriate Noise Reduction Rating to withstand increased decibel levels when working near engines.
- Wear appropriate footwear with toe protection.
- Wear a hardhat to protect your head.
- Control the machine, personal movement and the work environment to avoid personal injury or damage to the equipment.
- Do not operate, adjust, or perform maintenance on any part of this machine when tired or under the influence of drugs, alcohol, or medications.
- Wear protective clothing, including a hard hat, designed for the work environment and equipment.
- Avoid wearing clothes or jewelry that can become entangled when operating or working on the machine. Keep long hair covered and bound.
- Wear gloves that provide protection based on the work being performed.  
 Note: Do not wear gloves when operating or working on a part of the equipment that can snag the material and pull the hand into the moving parts of the machine or accessory.
- Do not overreach when using. Wear non-skid, footwear with toe protection to maintain proper footing and balance and to enable better control in unexpected situations.
- Keep fingers and limbs away from moving parts and pinch points around the machine.

- The operator must be of sufficient age, understanding, mental capacity, and physical capability to safely operate this equipment. The operator's ability to safely operate this off-road equipment is largely dependent upon the operator's ability to exercise proper judgment. ALWAYS FOLLOW THE RECOMMENDED AGE RESTRICTION OF 16 YEARS FOR OPERATORS.

### SPECIFIC SAFETY PRECAUTIONS



**WARNING** DO NOT let comfort or familiarity with the product (gained from repeated use) replace strict adherence to the machine safety rules. If you use this equipment unsafely or incorrectly, you may suffer serious personal injury.

- Use the correct tool for the job. This equipment was designed for a specific function. Do not modify or alter this equipment or use it for an unintended purpose.
- Do not use the machine if any parts are damage broken or misplaced. Repair or replace the parts, as necessary.
- Do not use the machine if it appears or sounds to be operating abnormally. Seek a qualified technician to repair and verify the machine and its components are operating correctly before using.
- Do not modify the machine. Assembly, maintenance, and/or repair of the machine and its components shall only be performed by persons of sufficient mechanical skill, experience, and judgment (such as outdoor equipment dealers, construction equipment shops, or power equipment repair shops) so that no unsafe condition or modification is made.
- Slow down and be prepared to stop by releasing the hydraulic controls. Wet, slippery, rough, or steep terrain is potentially dangerous and may result in injury if proper caution is not observed. Slow speeds are required to safely operate this equipment under these conditions. The operator must use mature judgment, skill, and experience to choose a speed suitable for the terrain and riding conditions.
- Do not exceed the rated operating capacity, as the machine may become unstable, which may result in loss of control.
- Do not transport an attachment with the lift arms raised. Always keep the bucket or attachment at its lowest possible height, allowing for clearance over the ground or any obstacles for greater stability. If possible, minimize movement while the bucket is raised higher than the operator hand holds.
- Have the work area marked for buried utility lines and DO NOT dig in marked areas. Contact your local utility marking service or utility company to have the work area marked. In the US, call 811 for marking service, or in Canada, visit [www.clickbeforeyoudig.com](http://www.clickbeforeyoudig.com) and follow the links to visit the local damage prevention center website to place a marking request for your region.
- Do not operate the machine without the guards and other safety protective devices in place and working on the machine.

- **Keep your hands and feet away from the moving components and attachments.** Loose clothing, long hair, or articles worn by an operator must be fully contained or covered to prevent being caught in any rotating parts.
- **Never allow children or untrained people to operate the machine.**
- **Keep bystanders and pets away from the machine.**
- **Stop, shut off the machine and remove the key prior to servicing, fueling, or unclogging the machine or attachment.**
- **Disconnect any powered accessory equipment after each use and before servicing the machine.**
- **Operation of this machine requires skills acquired through practice over a period of time.** Take time to learn the basic techniques well before operation of the machine and any of its components.
- **Operate only on safe and familiar terrain.** Avoid steep inclines, and allow for extra braking distances, especially on wet surfaces.
- **Use the horn to warn others.** When making turns at blind corners or when traveling through passageways, use the audible horn to warn others.

#### ENGINE SAFETY



#### WARNING

Refer to the engine manual for important information regarding safety, operation, maintenance, and repair.

- **THE ENGINE IS NOT SHIPPED WITH OIL.** Add oil and check the oil level prior to each use.
- **Gasoline, its vapors, and oil used in the engine are EXTREMELY FLAMMABLE and can be EXPLOSIVE under certain conditions, creating the potential for serious injury or death if improperly handled.**
- **Never operate an engine with a fuel or oil leak.**
- **Never refuel the engine when it is hot.** Turn off the engine and allow it to cool before attempting to add oil or gasoline.
- **Do not fill the tank in a closed area such as a garage, while smoking, or near any source of flame or sparks; this includes any appliance with a pilot light.**
- **Replace cap tightly to prevent spillage of fuel and potential fire hazard.**
- **Immediately clean any fuel or oil spills before starting the engine.**
- **Do not touch the engine.** The engine will become very hot during and after operation.
- **Use only regular unleaded gasoline with an octane rating of 90 or higher.** Using a lower rated fuel may result in poor performance and a shorter life span of the engine.
- **Fuel can damage paint and some types of plastic.** Be careful not to spill fuel when filling your fuel tank.
- **Never run the engine without the air filter in place.**
- **Operating the engine without the air filter in place will allow dust and debris to enter the engine resulting in severe engine damage.**
- **AVOID getting the air filter wet when in operation or while washing the vehicle.**
- **DO NOT use pressurized air to clean the air filter.**

#### SLOPE SAFETY



#### WARNING

Use extra caution when operating on any slope. Do not use on slopes

greater than 10 degrees. Slopes are a major factor related to loss of control and tip-over accidents, which can result in severe injury or DEATH.

- **Operate the machine up and down slopes with the heavy end of the machine uphill.** Weight distribution changes with attachments. An empty load-bearing attachment makes the rear of the machine the heavy end, and a

full load-bearing attachment makes the front of the machine the heavy end. Most other attachments make the front of machine the heavy end.

- **Always travel STR up or down a hill.** Avoid operating parallel to a slope.
- **Keep the lift arms in the lowered position when on slopes.** Raising the lift arms on a slope affects the stability of the machine.
- **Establish procedures and rules for operating on slopes.** Procedures must include a site survey to determine which slopes are safe for machine operation. Always use common sense and good judgment when establishing procedures, rules, and when performing the site survey.
- **Ground conditions can affect the stability of the machine.** Slow down and use extra care on hillsides.
- **Avoid starting or stopping on a slope.** If the machine loses traction, proceed slowly, STR down the slope.
- **Avoid turning on slopes.** If you must turn, turn slowly and keep the heavy end of the machine uphill.
- **Keep all movements on slopes slow and gradual.** Do not make sudden changes in speed or direction.
- **Do not operate on a slope if you feel uneasy** about doing it.
- **Watch obstacles such as holes, ruts, bumps or uneven terrain that may overturn the machine.** Tall grass may hide obstacles.
- **Evaluate the area to ensure there are no obstacles and that the ground is stable enough to support the machine** before operating in that location.
- **Reduced traction could cause sliding.** Use caution when operating on wet surfaces.
- **Maintain a safe distance from any hazard and use caution when operating near:**
  - Drop-offs
  - Ditches
  - Embankments
  - Bodies of water

The machine could suddenly roll over if a track goes over the edge or if the edge caves in.

- **Do not park the machine on a hillside or slope.**
- **Do not remove or add attachments on a slope.**

#### BUCKET SAFETY

- **Lower the bucket or attachment** and shut off the machine each time you leave the operating position.
- **NEVER (or allow another person to) walk or work under a raised attachment.**
- **Do not transport or lift people with this machine.**
- **Prevent the load from spilling backwards** by keeping the bucket level when lifting.
- **Ensure the bucket or attachment is fully supported on the ground prior to releasing the quick release pins.**

#### MAXIMUM MATERIAL DENSITY AT CAPACITY

The density of materials that can be safely moved by the bucket varies and, therefore, so does the amount of material that the bucket can carry before reaching the maximum load rating. The maximum density is calculated by dividing the Rated Operating Capacity by the Bucket Volume.

The maximum struck (leveled) bucket capacity is:

$$200 \text{ kg} / 0.075 \text{ m}^3 (440 \text{ Lbs} / 2.65 \text{ ft}^3) = 2666 \text{ kg/m}^3 (166 \text{ lbs/ft}^3)$$

The maximum heaped bucket capacity is:

$$200 \text{ kg} / 0.080 \text{ m}^3 (440 \text{ Lbs} / 2.85 \text{ ft}^3) = 2500 \text{ kg/m}^3 (154 \text{ lbs/ft}^3)$$

The Material Density Table lists some common materials and their densities.

| Common Material Densities        |                                                   |
|----------------------------------|---------------------------------------------------|
| Material                         | Approx. Density                                   |
| Caliche                          | 1250 kg/m <sup>3</sup> (78 lbs/ft <sup>3</sup> )  |
| Clay:                            |                                                   |
| Natural Bed                      | 1600 kg/m <sup>3</sup> (104 lbs/ft <sup>3</sup> ) |
| Dry                              | 1480 kg/m <sup>3</sup> (93 lbs/ft <sup>3</sup> )  |
| Wet                              | 1660 kg/m <sup>3</sup> (104 lbs/ft <sup>3</sup> ) |
| w/Gravel, Dry                    | 1420 kg/m <sup>3</sup> (89 lbs/ft <sup>3</sup> )  |
| w/Gravel, Wet                    | 1540 kg/m <sup>3</sup> (96 lbs/ft <sup>3</sup> )  |
| Coal:                            |                                                   |
| Anthracite, Broken               | 1100 kg/m <sup>3</sup> (69 lbs/ft <sup>3</sup> )  |
| Bituminous, Broken               | 830 kg/m <sup>3</sup> (52 lbs/ft <sup>3</sup> )   |
| Earth:                           |                                                   |
| Dry, Packed                      | 1510 kg/m <sup>3</sup> (94 lbs/ft <sup>3</sup> )  |
| Wet, Packed                      | 1600 kg/m <sup>3</sup> (100 lbs/ft <sup>3</sup> ) |
| Loam                             | 1250 kg/m <sup>3</sup> (78 lbs/ft <sup>3</sup> )  |
| Granite, Broken or Large Crushed | 1660 kg/m <sup>3</sup> (104 lbs/ft <sup>3</sup> ) |
| Gravel:                          |                                                   |
| Dry                              | 1510 kg/m <sup>3</sup> (94 lbs/ft <sup>3</sup> )  |
| Pit run (graveled sand)          | 1930 kg/m <sup>3</sup> (120 lbs/ft <sup>3</sup> ) |
| Dry, 13 to 51 mm (1/2 to 2 in.)  | 1690 kg/m <sup>3</sup> (106 lbs/ft <sup>3</sup> ) |
| Wet, 13 to 51 mm (1/2 to 2 in.)  | 2020 kg/m <sup>3</sup> (126 lbs/ft <sup>3</sup> ) |
| Limestone, Broken or Crushed     | 1540 kg/m <sup>3</sup> (96 lbs/ft <sup>3</sup> )  |
| Sand:                            |                                                   |
| Dry                              | 1420 kg/m <sup>3</sup> (89 lbs/ft <sup>3</sup> )  |
| Wet                              | 1840 kg/m <sup>3</sup> (115 lbs/ft <sup>3</sup> ) |
| w/Gravel, Dry                    | 1720 kg/m <sup>3</sup> (107 lbs/ft <sup>3</sup> ) |
| w/Gravel, wet                    | 2020 kg/m <sup>3</sup> (126 lbs/ft <sup>3</sup> ) |
| Sandstone, Broken                | 1510 kg/m <sup>3</sup> (94 lbs/ft <sup>3</sup> )  |
| Shale                            | 1250 kg/m <sup>3</sup> (78 lbs/ft <sup>3</sup> )  |
| Slag, Broken                     | 1750 kg/m <sup>3</sup> (109 lbs/ft <sup>3</sup> ) |
| Stone, crushed                   | 1600 kg/m <sup>3</sup> (100 lbs/ft <sup>3</sup> ) |
| Topsoil                          | 950 kg/m <sup>3</sup> (59 lbs/ft <sup>3</sup> )   |

## LABELS

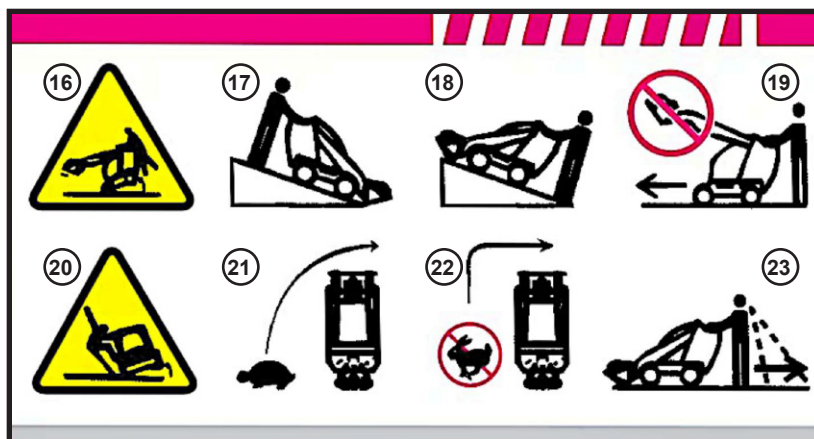


LABEL 1

**Maintain labels.** Labels on this product, if applicable, carry important information. If unreadable or missing, contact Star-Asia USA, LLC for free replacement labels.

The label on your machine may include the following symbols. The symbols and their definition are as follows:

1. Inhalation hazard. The engine emits toxic gases or fumes. Use only outdoors.
2. Read and understand engine manual prior to operation.
3. Fire hazard. Do not smoke or expose to open flames.
4. Stop engine before fueling, maintenance, or repair.
5. Use only ethanol free fuel.
6. Keep all bystanders and pets a safe distance while operating.
7. Read and understand machine manual prior to operation.
8. Wear appropriate personal protective equipment including eye wear, hearing protection, and a hard hat.
9. Wear appropriate gloves.
10. Wear appropriate foot wear.
11. Safety alert signal.
12. Do not allow persons or pets underneath the bucket or lift arms.
13. Beware of underground hazards.
14. Buried electrical lines may cause shock.
15. Do not let untrained persons or children operate the machine.



LABEL 2

16. Use Caution when operating on any slope. Refer to SLOPE SAFETY section. Avoid lifting a loaded bucket on the downhill side.
17. Keep the lift arms lowered to the lowest possible position when descending a slope.
18. Operate with heavy end of machine on the uphill side, and keep the lift arms lowered to the lowest possible position when ascending a slope.
19. Do not drive with the lift arms raised.
20. To prevent tipping, avoid operating parallel to a slope.
21. Use lower speeds to turn.
22. Avoid using high speeds and making sharp turns.
23. Always look behind when backing up.



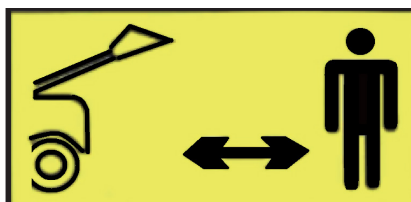
(24)

LABEL 3



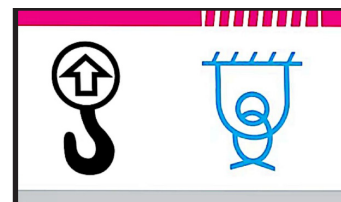
(25)

LABEL 4



(26)

LABEL 5

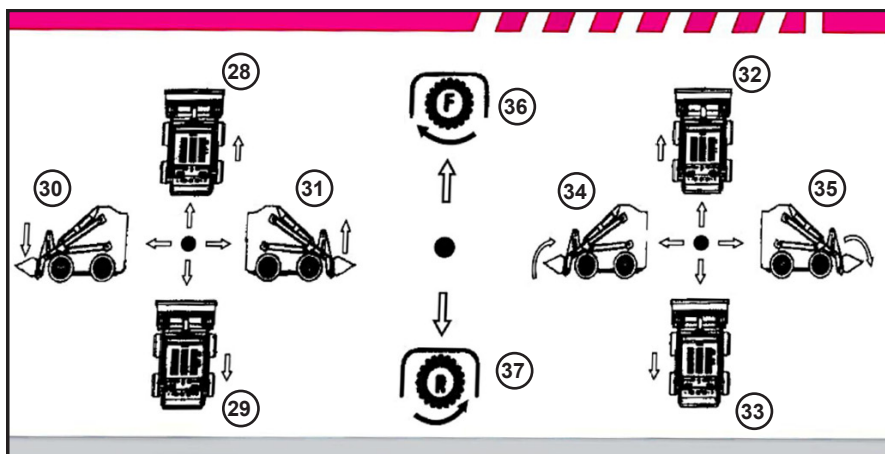


(27)

LABEL 6

24. This equipment produces sound levels in excess of 95 dBA at the operator position and can cause hearing loss through extended periods of exposure. Wear hearing protection when operating or working near this equipment.

25. Read and follow the machine instruction manual prior to use.
26. Keep bystanders and pets clear of the machine while operating.
27. Lift point



LABEL 7

28. Right track FORWARD
29. Right track REVERSE
30. Lift arm UP
31. Lift arm DOWN
32. Left track FORWARD

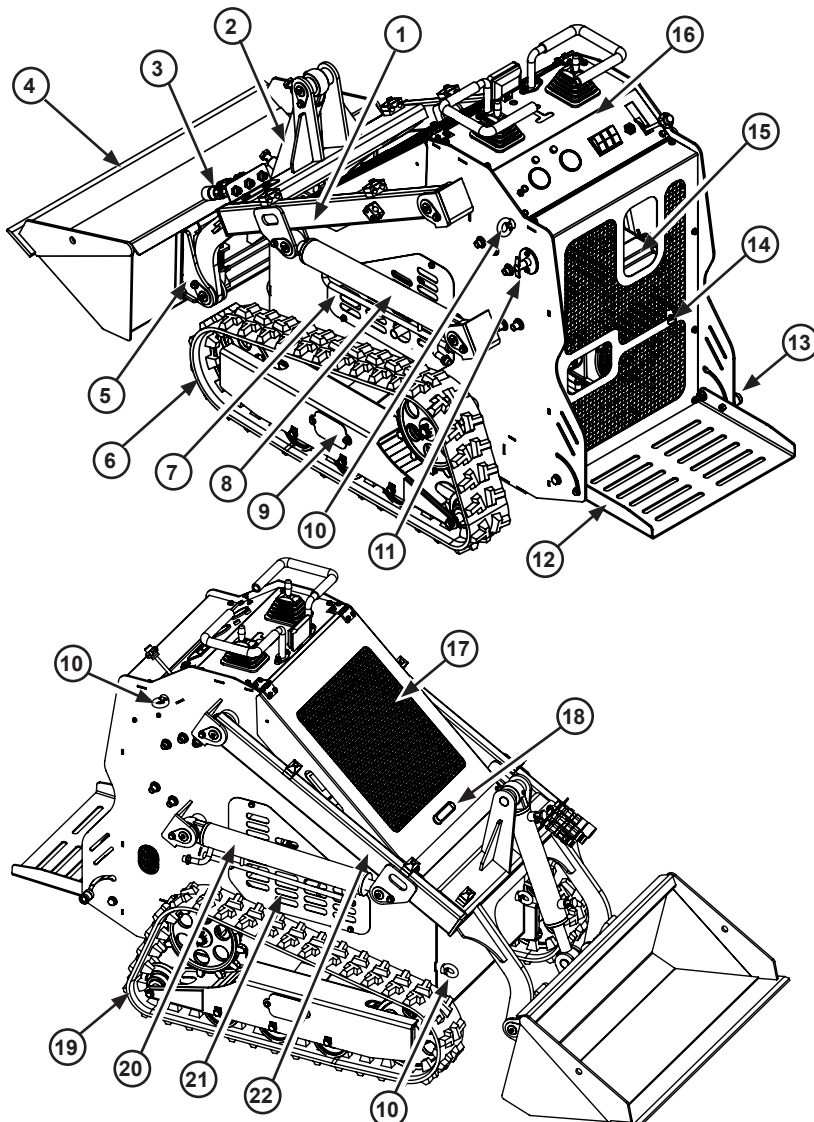
33. Left track REVERSE
34. Attachment (Bucket) UP/BACK
35. Attachment (Bucket) DOWN/FORWARD
36. Accessory FORWARD (Clockwise)
37. Accessory REVERSE (Counterclockwise)

#### ADDITIONAL SYMBOLS THAT MAY BE USED IN THIS MANUAL OR ON EQUIPMENT

| Symbol | Property or Statement                                                    | Symbol | Property or Statement                                                                                                            |
|--------|--------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------|
|        | Read and understand this instruction manual prior to using this product. |        | Wear ANSI approved (or applicable national standard) goggles or properly fitted protective glasses with top and side protection. |

| Symbol                                                                            | Property or Statement                                                                                            | Symbol                                                                            | Property or Statement                                                                                          |
|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|  | Use approved hearing protection such as ear plugs or ear muffs.                                                  |  | PINCH POINT HAZARD.<br>Keep hands clear of pinch points.                                                       |
|  | Use NIOSH approved dust mask or respirator.                                                                      |  | MOVING PARTS CAN CRUSH AND CUT<br>Keep away from moving parts and ensure all guards in place during operation. |
|  | Wear anti-vibration safety gloves when operating.                                                                |  | SKIN INJECTION HAZARD.<br>Protect hands and body from high pressure fluids.                                    |
|  | Wear foot protection.                                                                                            |  | PRESSURIZED SYSTEM.<br>Shut off and relieve system pressure prior to maintenance.                              |
|  | Do not stand or step on this surface.                                                                            |  | RISK OF FIRE.<br>Engine fuel and hydraulic fluids are combustible.                                             |
|  | MOVING OBJECT HAZARD. Keep all people out of the path of moving equipment and objects when operating or loading. |  | BURN HAZARD.<br>Hot surface, do not touch. Allow surface to cool prior to maintenance.                         |
|  | CRUSH HAZARD.<br>NEVER allow bystanders, children, or pets to cross under or near an object being lifted.        |                                                                                   |                                                                                                                |

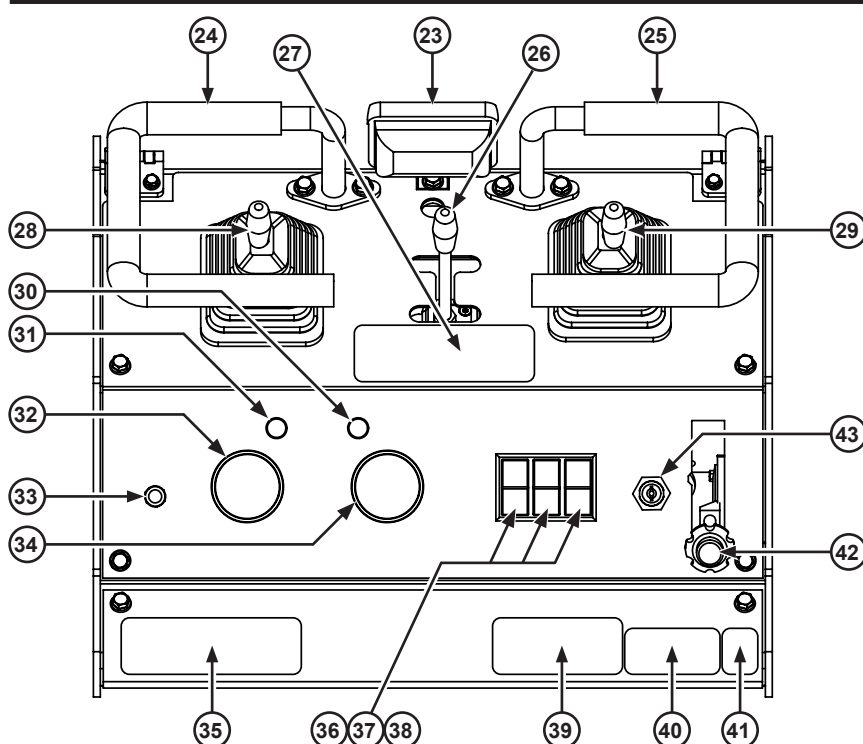
## PRODUCT OVERVIEW



|    |                                 |
|----|---------------------------------|
| 1  | Lift Arm (Left)                 |
| 2  | Attachment Cylinder             |
| 3  | Attachment Hyd. Quick Conn.     |
| 4  | Bucket Attachment               |
| 5  | Quick-Release Attachment Plate  |
| 6  | Track (Left)                    |
| 7  | Lift Arm Cylinder, Left         |
| 8  | Side Panel Access Cover (Left)  |
| 9  | Track Box Cover Plate           |
| 10 | Lift Point Eye bolt             |
| 11 | Battery Mains Cutoff Switch     |
| 12 | Operator Platform               |
| 13 | Platform Lock/Release Pin       |
| 14 | Rear Safety Cage                |
| 15 | Engine Fuel Tank                |
| 16 | Operator Panel                  |
| 17 | Access Door                     |
| 18 | Access Door Lock                |
| 19 | Track (Right)                   |
| 20 | Lift Arm Cylinder, Right        |
| 21 | Side Panel Access Cover (Right) |
| 22 | Lift Arm (Right)                |

Note: Hoses not shown on these drawings for clarity.

# OPERATOR CONTROL PANEL



|    |                                |
|----|--------------------------------|
| 23 | Work light                     |
| 24 | Operator Hand Hold (Left)      |
| 25 | Operator Hand Hold (Right)     |
| 26 | Accessory Hyd. Control         |
| 27 | Label 7                        |
| 28 | Left Hydraulic Control         |
| 29 | Right Hydraulic Control        |
| 30 | Green Indicator Light          |
| 31 | Red Indicator Light            |
| 32 | Hydraulic Oil Temp. Gauge      |
| 33 | Manual Choke Lever             |
| 34 | Voltage Hour Meter             |
| 35 | Label 1                        |
| 36 | Radiator Fan Switch            |
| 37 | Light Switch                   |
| 38 | Audible Horn Switch            |
| 39 | Label 2                        |
| 40 | Label 4                        |
| 41 | Label 3                        |
| 42 | Throttle Lever                 |
| 43 | Electric Start Ignition Switch |

Items in parenthesis ( ) refer to the Product Overview and Operator Control Panel Tables.

## **Battery Mains Cutoff Switch (11)**

The Battery Mains Cutoff Switch (11) is used to isolate the battery from the main wiring harness and can be used as an emergency shut off of the machine. Always cut power from the machine when not in use to prevent others from starting.

## **Electric Start Ignition Switch (43)**

The Electric Start Ignition Switch (43) is used to start and shut off the engine. It has four positions: Off, Accessory, Run, and Start. Always remove the keys from the ignition when the machine is not in use to prevent others from starting.

## **Throttle Lever (42)**

The Throttle Lever (42) is used to set the speed of the engine, when placed in the most forward position (away from the operator), the engine is at idle speed, and when placed in the most rearward position (towards the operator), the engine is at full speed. When starting the engine, place the lever between half and full speed.

## **Manual Choke Lever (33)**

The Manual Choke Lever (33) is used to reduce the amount of air available to the engine, normally this should be fully pushed in during running. A cold start may require the choke to be pulled either halfway or fully out, to allow more fuel to the engine, making starting easier. Push the choke fully in once the engine has started.

## **Operator Hand Holds (24 & 25)**

Hand holds are provided in case the operator needs additional support while either stepping onto the operator platform or when encountering rough terrain. The hands are normally operating the Hydraulic Controls (28 & 29), while the wrists are resting on the hand holds.

## **Left Hydraulic Control Lever (28)**

A joystick with four positions, see Label 7 for each position definition. Note that the Left Hydraulic Control operates the Right Side Track (19). If the control lever is moved forward individually, without moving the Right Hydraulic Control (29) forward, the Right Side Track (19) will begin to move forward thus turning the machine to the LEFT. For a more efficient and smaller radius turn to the left,

simultaneously moving the Right Hydraulic Control to the rear will cause the Left Side Track (6) to move in the opposite direction.

The Left Hydraulic Control Lever, when moved to the LEFT, will lower the Lift Arms (1 & 22), and when moved to the RIGHT will raise the Lift Arms (1 & 22).

## **Right Hydraulic Control Lever (29)**

A joystick with four positions, see Label 7 for each position definition. Note that the Right Hydraulic Control operates the Right Side Track (6). If the control lever is moved forward individually, without moving the Left Hydraulic Control (28) forward, the Left Side Track (6) will begin to move forward thus turning the machine to the RIGHT. For a more efficient and smaller radius turn to the right, simultaneously move the Left Hydraulic Control to the rear to cause the Right Side Track (19) to move in the opposite direction.

The Right Hydraulic Control Lever, when moved to the LEFT, will tip the Quick Release Attachment Plate (5), and the Bucket Attachment (4) backwards towards the operator, and when moved to the RIGHT will tip the Quick Release Attachment Plate (5), and the Bucket Attachment (4) forwards away from the operator.

## **Operating Left and Right Hydraulic Controls (28 & 29) together:**

As described above, moving the Left and Right Hydraulic Controls, individually or simultaneously together in opposite directions, will effect a turn to the Left or Right, as desired. Moving both controls into the forward position will cause the machine to move forward, and moving the controls into the rearward position will cause the machine to move backward.

The speed of machine movement is controlled through by the amount of movement in each Hydraulic Control Lever. Use small movements of the lever when learning to operate the machine. Maintain control of the machine at all times, and avoid sudden movements and sharp turning.

## **Green Indicator Light (30)**

The Green Indicator Light (30) Indicates the machine is running correctly.

## **Red Indicator Light (31)**

The Red Indicator Light (31) indicates the machine

temperature is excessive. Switch on the Radiator Fan (36), or shut off the machine and allow it to cool completely prior to next starting.

#### **Oil Temperature Gauge (32)**

The Oil Temperature Gauge (32) displays the oil temperature of the hydraulic oil and is measured by a temperature sensor located at the radiator behind the main Access Door (17)..

#### **Voltage Hour Meter (34)**

The Voltage Hour Meter (34) indicates the total number of run hours that the machine has been run. A voltage indicator is included on the Voltage Hour Meter and will illuminate if the battery voltage is low  $\leq 11V$  DC.

#### **Accessory Hydraulic Control (26)**

The Accessory Hydraulic Control (26) is used when operating a hydraulically driven accessory. The lever can be moved into one of two positions, forward (clockwise rotation), or reverse (counterclockwise rotation), and can

be moved to either left or right to lock the lever in place. Because the lever is spring loaded, a tap towards center will cause the lever to return to the neutral position and stop the accessory movement. Ensure this handle is in the center position before attempting to attach or detach any accessory. **Note:** It may be necessary to move the handle back and forth slightly to remove any residual pressure in the tubes prior to connecting or disconnecting any hydraulic lines.

#### **Work Light (23)**

The Work light (23) points in the forward direction and is operated ON or OFF via the Light Switch (37).

#### **Audible Warning Horn Switch (38)**

The machine is equipped with an audible warning horn and can be operated by pressing and releasing the Horn Switch (38). When making turns at blind corners or when traveling through passageways, use the audible horn to warn others.

## INITIAL START UP



### **WARNING**

**This is a complex and dangerous machine.** The Compact Tool

Carrier and its components can be dangerous when started up incorrectly. If you do not feel completely comfortable in starting it up, then seek the services of a qualified technician.

The machine comes mostly pre-assembled, however the hydraulic fluid, lubricants, fuel, and maybe the battery will need to be installed by the user or by a competent technician. Follow these steps to ensure proper start up.

#### **Tools & items needed for start up:**

|   |                                                                    |
|---|--------------------------------------------------------------------|
| 1 | 1.1L (1.1 Qt) Engine Oil (10W-30, refer to engine manual)          |
| 2 | 25L (26.4 Qt) ISO 32 (10 W) Hydraulic Oil                          |
| 3 | Grease Gun with high quality EP, or molybdenum EP grease.          |
| 4 | 6.5L (1.7 Gal) Ethanol-free, 86 Octane or higher Unleaded Gasoline |
| 5 | 10mm Socket and Socket Driver                                      |
| 6 | Funnel with long, flexible spout                                   |

**Note: *Keys to the access door and the ignition*** are normally placed in the included tool kit, or may be attached with a zip tie behind the rear safety cage near the fuel access opening.

Items in parenthesis ( ) refer to the [Product Overview and Operator Control Panel Tables](#).

### CHECK & ADD ENGINE OIL



### **WARNING**

**THE ENGINE MAY NOT HAVE OIL ADDED DURING SHIPMENT.**

**CHECK THE ENGINE OIL AND ADD, IF NECESSARY!**

### **FAILURE TO ADD OIL WILL RESULT IN DAMAGE TO THE MACHINE AND ENGINE FAILURE.**

Follow the instructions in the engine manual and check that the engine has oil using the engine oil dipstick.

If there is no oil in the engine, or if the engine oil is low, add oil. Use a quality grade engine oil, appropriate for the work environment and ambient temperature, and as defined in the engine manual. You will need a clean funnel with a long, flexible spout to reach the fill port.

### ADD HYDRAULIC OIL

Although the machine is tested prior to leaving the factory, the hydraulic fluids and fuel are drained due to shipping regulations.

#### **To inspect and add hydraulic oil:**

1. If the engine has been running for any amount of time, allow the engine and hydraulic system to cool down completely.
2. Locate the keys (see previous note about *Keys to the access door and ignition*), and unlock the main Access Door (17).
3. Use the Access Door Prop Arm to prop the door open.
4. Swing the Hydraulic Radiator and Fan assembly out of the way.
5. Inspect the Oil Sight Glass on the Hydraulic Tank (See Fig. 13) located at the base of the machine, in the front.
6. If the oil level is low, or if there is no oil, unscrew the cap on the hydraulic tank (Fig. 12)

Hydraulic Tank Fill Port

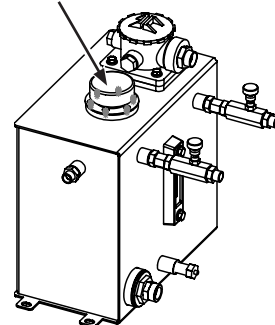


Fig. 12

7. Use a clean funnel with a long, flexible spout to fill the hydraulic tank. Check that there are no leaks and that the oil level is full on the sight glass.
8. Wipe up any excess oil that may have been spilled or dripped onto the hydraulic tank or at the base of the machine.
9. Replace the cap on the hydraulic tank.
10. If starting up for the first time, proceed to the section titled *Check the Battery Connections*.
11. Swing the Hydraulic Radiator and Fan assembly back into place.
12. Release the Access Door Prop Arm, close the main Access Door (17), lock it and place the keys in a secure location.

## CHECK THE BATTERY CONNECTIONS

The battery terminal connections should be checked at first start up and periodically to ensure proper connection.

### To check the battery connections:

1. If the engine has been running for any amount of time, allow the engine and hydraulic system to cool down completely.
2. Locate the keys (see previous note about *Keys to the access door and ignition*), and unlock the main Access Door (17).
3. Turn the Battery Mains Cutoff Switch (11) to the OFF position.
4. Use the Access Door Prop Arm to prop the door open.
5. Swing the Hydraulic Radiator and Fan assembly out of the way.

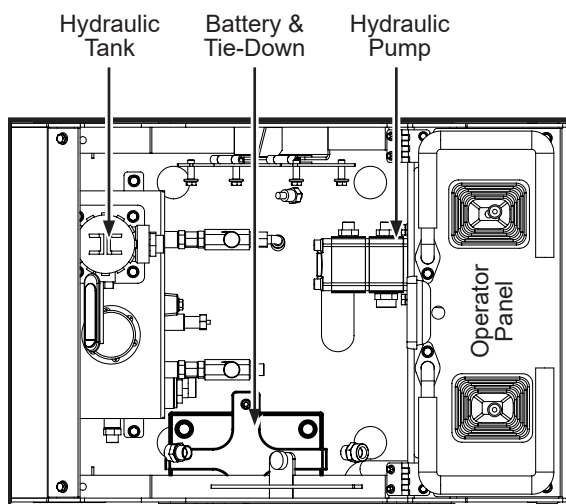


Fig. 13 - Top view, Machine Interior

6. The Battery and the Battery Tie-Down clamp plate is located inside the base of the machine, on the left side (as viewed from the operator panel). Check that the Battery Tie-Down clamp is tight enough to prevent the battery from moving. Do not over-tighten.
7. Use a 10mm socket on a socket driver to disconnect the BLACK NEGATIVE (-) cable from the battery terminal prior to starting any work. Move the cable and its connector away from the battery.
8. Check that there is not a plastic cover over either battery terminal, and that the battery terminals and connectors are clean.
9. Check that the RED POSITIVE (+) cable connector is connected to the positive terminal on the battery terminal, then use a 10mm socket on a socket driver to tighten the connector onto the terminal.
10. Place the BLACK NEGATIVE (-) battery connector onto the negative terminal of the battery, then use a 10mm socket on a socket driver to tighten the connector onto the terminal.
11. Move the dust covers on the cable connectors over the connectors and battery terminals to help prevent buildup of dust and debris.
12. Swing the Hydraulic Radiator and Fan assembly back into place.
13. Release the Access Door Prop Arm, close the main Access Door (17), lock it and place the keys in a secure location.
14. If starting up for the first time, proceed to the section titled *Fueling*.

## FUELING

### RECOMMENDED FUEL:

Use only clean, fresh Ethanol-free, 86 Octane or higher Unleaded Gasoline. Purchase fuel in quantities that you can use within 180 days to ensure fuel freshness.

The Fuel Tank Capacity is 6.5 L (1.7 US Gallons).

### To fuel the machine:

1. Park the machine on a level surface and lower the lift arms.
2. Shut off the engine and remove the ignition key.



**RISK OF FIRE.** Gasoline, its vapors, and oil used in the engine are **EXTREMELY FLAMMABLE** and can be **EXPLOSIVE** under certain conditions, creating the potential for serious injury or death if improperly

handled. Read and follow all related safety warning in the engine manual.

3. The fuel cap is accessible through the Rear Safety Cage (14) and at the Engine (15) opening.
4. Remove the fuel cap.
5. With care to prevent any spills, use a clean funnel with a long, flexible spout to fill the Fuel Tank. Do not overfill.
6. Wipe away any excess fuel that may have dripped or spilled onto the fuel tank or into the base of the machine
7. Reinstall the Fuel Cap.

## STARTING THE ENGINE

### To start the engine:

1. Lower the Operator Platform (12) by pulling out the Platform Lock/Release Pin (13), placing the Platform into the horizontal position, then fully engaging the Platform Lock/Release Pin (13).
2. Ensure the Battery Mains Cutoff Switch (11) is in the ON position.
3. With at least one hand grab onto a Hand Hold (24 or 25) and Step onto the Operator Platform (12)
4. Insert the ignition key into the Electric Start Ignition Switch (43).
5. Pull the Manual Choke Lever (33) out fully.
6. Move the throttle to the half-way or full-back position.
7. Turn the key to the Start position. When the engine starts, release the key.
8. Allow the engine to run for about thirty seconds then move the throttle lever forward to the idle position and push the Manual Choke Lever all the way in.

### NOTICE

**If the engine does not start after 10 seconds, turn the key to the OFF position and allow the starter to cool down for 30 seconds between attempts. Failure to follow these instructions could burn out the starter motor.**

### Starting the engine in cold weather:

If the outdoor temperature is below freezing, store the machine in a garage to keep it warm and to aid in starting. Once the engine is started, allow a few minutes for the hydraulic fluid to warm up.

### NOTICE

**Running the engine at high speeds when the hydraulic fluid is cold (when the ambient temperature is near or below freezing) could damage the hydraulic system. Be sure to use lower viscosity hydraulic oil and allow the system more time to warm up completely.**

## SHUTTING OFF THE ENGINE

### When shutting off the engine:

1. Park the machine on a level surface and lower the lift arms.
2. Disengage the Accessory Hydraulic Control (26), if applicable.
3. Set the throttle to the idle position, fully forward.

4. If the engine has been working hard or is hot, allow it to idle for a few minutes before turning the Electric Start Ignition Switch (43) to the OFF position. Running the engine allows it to cool off slowly before shutting it off.
5. Turn the ignition key switch to the OFF position and remove the key.

## OPERATING THE MACHINE

### GENERAL SAFETY DURING OPERATION

- Do not exceed the rated operating capacity, as the machine may become unstable, which may result in loss of control.
- Do not carry a load with the arms raised. Always carry loads close to the ground.
- Use only approved attachments and accessories. Attachments can change the stability and the operating characteristics of the machine.
- Lower the loader arms before stepping off the platform.
- Do not try to stabilize the machine by putting your foot on the ground. If you lose control of the machine, step off the platform and away from the machine.
- Do not place your feet under the platform.
- Do not move the machine unless you are standing with both feet on the platform and your hands are holding onto controls or hand holds.
- Use your full attention while operating the machine. Do not engage in any activity that causes distractions; otherwise, injury or property damage may occur.
- Look behind and down before backing up to ensure that the path is clear.
- Never jerk the controls; use a steady motion.
- The owner/user can prevent and is responsible for accidents that may cause personal injury or property damage.
- Wear appropriate clothing including gloves, eye protection, long pants, substantial slip-resistant footwear, and hearing protection. Tie back long hair and do not wear loose clothing or loose jewelry.
- Do not operate the machine when you are tired, ill, or under the influence of alcohol or drugs.
- Never carry passengers and keep pets and bystanders away from the machine.
- Operate the machine only in good light, keeping away from holes and hidden hazards.
- Start the engine only from the operator's position.
- Use care when approaching blind corners, shrubs, trees, or other objects that may obscure vision. Sound the horn to warn others.
- Slow down and use caution when making turns and crossing roads and sidewalks. Watch for traffic.
- Stop the attachment when you are not working.
- Stop the machine, shut off the engine, remove the key, and inspect the machine if you strike an object. Make any necessary repairs before resuming operation.
- Never run an engine in an enclosed area.
- Never leave a running machine unattended.
- Before leaving the operating position, do the following:
  - Park the machine on a level surface.
  - Lower the loader arms and disengage the auxiliary hydraulics.
  - Engage the parking brake (if equipped).
  - Shut off the engine and remove the key.
- Do not operate the machine when there is the risk of lightning.
- Operate the machine only in areas where there is sufficient clearance for you to safely maneuver. Be

aware of obstacles in close proximity to you. Failure to maintain adequate distance from trees, walls, and other barriers may result in injury as the machine backs up during operation if you are not attentive to the surroundings.

- Check for overhead clearance (i.e., electrical wires, branches, and doorways) before driving under any objects and do not contact them.
- Do not overfill the attachment and always keep the load level when raising the loader arms. Items in the attachment could fall and cause injury.

### SLOPE SAFETY

- Operate the machine up and down slopes with the heavy end of the machine uphill. Weight distribution changes with attachments. An empty bucket makes the rear of the machine the heavy end, and a full bucket makes the front of the machine the heavy end. Most other attachments make the front of machine the heavy end.
- Raising the loader arms on a slope affects the stability of the machine. Keep the loader arms in the lowered position when on slopes.
- Slopes are a major factor related to loss of control and tip-over accidents, which can result in severe injury or death. Operating the machine on any slope or uneven terrain requires extra caution.
- Establish your own procedures and rules for operating on slopes. These procedures must include surveying the site to determine which slopes are safe for machine operation. Always use common sense and good judgment when performing this survey.
- Slow down and use extra care on hillsides. Ground conditions can affect the stability of the machine.
- Avoid starting or stopping on a slope. If the machine loses traction, proceed slowly, STR down the slope.
- Avoid turning on slopes. If you must turn, turn slowly and keep the heavy end of the machine uphill.
- Keep all movements on slopes slow and gradual. Do not make sudden changes in speed or direction.
- If you feel uneasy operating the machine on a slope, do not do it.
- Watch for holes, ruts, or bumps, as uneven terrain could overturn the machine. Tall grass can hide obstacles.
- Use caution when operating on wet surfaces. Reduced traction could cause sliding.
- Evaluate the area to ensure that the ground is stable enough to support the machine.
- Use caution when operating the machine near the following:
  - Drop-offs
  - Ditches
  - Embankments
  - Bodies of water

The machine could suddenly roll over if a track goes over the edge or the edge caves in. Maintain a safe distance between the machine and any hazard.

- Do not remove or add attachments on a slope.
- Do not park the machine on a hillside or slope.

## UTILITY LINE SAFETY

Contact your local marking service or utility company to have the work area marked. In the US, call 811 for marking service, or in Canada, visit [www.clickbeforeyoudig.com](http://www.clickbeforeyoudig.com) and follow the links to visit the local damage prevention center website to place a marking request for your region.

- If you strike a utility line, do the following:
  - Shut off the machine and remove the key.
  - Remove all individuals from the work area.
  - Immediately contact the proper emergency and utility authorities to secure the area.
  - If you damage a fiber-optic cable, do not look into the exposed light.
- Do not leave the operator's platform if the machine is charged with electricity. You will be safe as long as you do not leave the platform.
  - Touching any part of the machine may ground you.
  - Do not allow another individual to touch or approach the machine when charged.
  - Always assume the machine is charged if you strike an electrical or communication line. Do not attempt to leave the machine.
- Leaking gas is both flammable and explosive and may cause serious injury or death. Do not smoke while operating the machine.

## DRIVING THE MACHINE

Review the section titled *Operator Control Panel* to familiarize yourself with the machine controls. In particular, understand the operation of the Left and Right Hydraulic Controls (28 & 29).

Prior to starting and driving the machine, always check that any attachment is engaged with the Attachment Plate (5) and the Quick Release Pins (Fig. 14) are fully engaged.

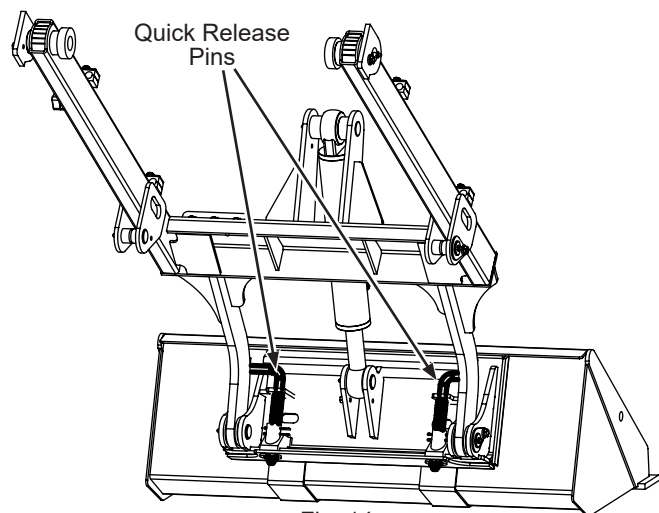


Fig. 14

While standing firmly on the operators platform, start the engine as described in the section *Starting the Engine*.

### NOTICE

**THE HYDRAULIC SYSTEM HAS AIR IN IT BEFORE START UP.**

**ONCE THE SYSTEM IS STARTED FOR THE FIRST TIME, THE SYSTEM WILL NEED TO BE OPERATED TO CYCLE THE OIL THROUGHOUT THE SYSTEM WHICH WILL CAUSE THE OIL LEVEL TO DROP. CHECK THAT THE HYDRAULIC OIL IS SUFFICIENT AFTER FIRST USE.**

On initial startup, raise and lower the lift arm while tilting the bucket forward and back several times to work out any air in the hydraulic lines.

With the bucket lifted a few inches off the ground move the machine forwards and backwards.

When operating, follow the safety guidelines outlined in this owner's manual.

## INSTALLING AN ATTACHMENT

### NOTICE

Use only approved attachments. Attachments can change the stability and the operating characteristics of the machine. Read and follow all instructions that accompany the attachment for installation and safe use. The warranty of the machine may be voided if you use the machine with unapproved attachments.

Before installing the attachment, ensure that the Attachment Plate (5) and mating mounting plate on the attachment are free of any dirt or debris and that the Quick Release Pins (Fig. 14) move freely. If the pins do not move freely, grease them.

1. Position the attachment on a level surface with enough space behind it to accommodate the machine.
2. Start the engine.
3. Tilt the attachment mount plate forward.
4. Position the mount plate into the upper lip of the attachment receiver plate (Fig. 15).

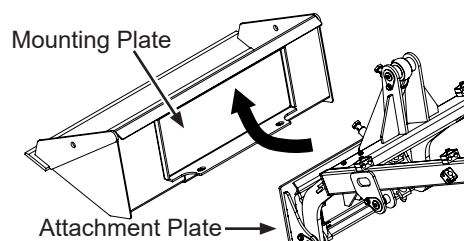


Fig. 15

5. Raise the loader arms while tilting back the mount plate at the same time. **NOTE:** Raise the attachment enough to clear the ground and tilt the mount plate all the way back.
6. Shut off the engine and remove the key.
7. Engage the Quick Release Pins, ensuring that they are fully seated in the mount plate. **NOTE:** If the pins do not rotate to the engaged position, the mount plate is not fully aligned with the holes in the attachment receiver plate. Check the receiver plate and clean it if necessary.



### WARNING

**ENSURE THE QUICK RELEASE PINS ARE PASSING THROUGH THE MOUNTING PLATE ON THE ATTACHMENT. FAILURE TO ENGAGE PROPERLY COULD RESULT IN THE ATTACHMENT FALLING OFF CAUSING PROPERTY DAMAGE, PERSONAL INJURY, OR DEATH.**

## CONNECTING AUXILIARY HYDRAULICS

The machine is equipped with Accessory Hydraulic quick connection points. Follow these instructions when connecting.



### WARNING

**SKIN INJECTION HAZARD.** Protect hands and body from high pressure fluids.

### PRESSURIZED SYSTEM.

Shut off and relieve system pressure prior to maintenance.

- DO NOT attempt to stop a leak with any part of the body. **IN CASE OF ACCIDENTAL SKIN INJECTION, SEEK IMMEDIATE MEDICAL TREATMENT!**
- Ensure that all hydraulic-fluid hoses and lines are in good condition and all hydraulic connections and fittings are tight before applying pressure to the hydraulic system.
- Keep your body and hands away from pinhole leaks or nozzles that eject high-pressure hydraulic fluid.
- Use cardboard or paper to find hydraulic leaks; never use your hands.



**BURN HAZARD.** Hydraulic couplers, hydraulic lines, and valves may become hot. Do not touch.

**MOVING OBJECT HAZARD.** Accessories powered by the accessory hydraulics will move. Keep out of the path of moving objects.

**CRUSH HAZARD.** NEVER allow bystanders, children, or pets to cross under or near an accessory or object being lifted.

- Wear gloves when operating the hydraulic couplers.
- Allow the machine to cool before touching hydraulic components.
- Do not touch hydraulic fluid spills.

**To connect an attachment that requires Auxiliary Hydraulics from the Quick Connectors, connect the hoses as follows:**

1. Shut off the engine.
2. Turn the key to the RUN position, but do not start the machine.
3. Press the auxiliary hydraulic control switch back and forth to relieve pressure at the hydraulic couplers.
4. Turn the key to the OFF position and remove it.
5. Remove the protective covers from the hydraulic connectors on the machine.
6. Ensure that all foreign matter is cleaned from the hydraulic connectors.
7. Push the attachment male connector into the female

connector on the machine. **NOTE:** When you connect the attachment male connector first, you relieve any pressure built up in the attachment.

8. Push the attachment female connector onto the male connector on the machine.
9. Confirm that the connection is secure by pulling on the hoses.

#### **Removing an attachment:**

1. Park the machine on a level surface.
2. Lower the attachment to the ground.
3. Shut off the engine and remove the key.
4. Disengage the quick-attach pins.
5. If the attachment uses hydraulics, do the following:
  - A. Turn the key to the RUN position, but do not start the machine.
  - B. Press the auxiliary hydraulic control switch back and forth to relieve pressure at the hydraulic couplers.
  - C. Turn the key to the OFF position and remove it.
  - D. Slide the collars back on the hydraulic couplers and disconnect them. **NOTE:** Connect the attachment hoses together to prevent hydraulic system contamination during storage.
  - E. Install the protective covers onto the hydraulic couplers on the machine.
6. Start the engine, tilt the mount plate forward, and back the machine away from the attachment.

## **MAINTENANCE & STORAGE**



**NEVER LEAVE AN UNATTENDED MACHINE WITH THE KEY IN THE IGNITION. REMOVE THE KEY FROM THE IGNITION SWITCH BEFORE PERFORMING ANY MAINTENANCE.**

- Park the machine on a level surface, disengage the auxiliary hydraulics, lower the attachment, shut off the engine, and remove the key. Wait for all movement to stop and allow the machine to cool before adjusting, cleaning, storing, or repairing it.
- Clean up oil or fuel spills.
- Do not allow untrained personnel to service the machine.
- Use jack stands to support the components when required.
- Carefully release pressure from components with stored energy; refer to Relieving Hydraulic Pressure (page 50).
- Disconnect the battery before making any repairs by

turning the Battery Cutoff Switch (11) to the OFF position, or by removing the negative (-) battery connection first, then removing the positive (+) battery connection.

- Keep your hands and feet away from the moving parts. If possible, do not make adjustments with the engine running.
- Keep all parts in good working condition and all hardware tightened. Replace all worn or damaged decals.
- Do not tamper with the safety devices.
- Use only original replacement parts from the factory.
- If any maintenance or repair requires the loader arms to be in the raised position, secure the arms in the raised position using appropriate methods.
- Refer to local regulations for safely maintaining the machine and attach a warning tag to the control panel to inform others of ongoing maintenance.

### **Recommended Maintenance Schedule**

| <b>Interval</b>          | <b>Recommended Maintenance</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| After the first 8 hours  | • Check and adjust track tension                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| After the first 50 hours | • Check and adjust track tension                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Before each use or daily | <ul style="list-style-type: none"> <li>• Grease the machine (and immediately after any washing)</li> <li>• Check the engine oil level</li> <li>• Check under the machine for any leaks.</li> <li>• Clean the tracks and check for excessive wear and proper tension.</li> <li>• Clean the access door and radiator of debris (if working in dusty conditions)</li> <li>• Check the hydraulic fluid level</li> <li>• Remove debris from the machine</li> <li>• Check for loose fasteners.</li> </ul> |
| Every 25 hours           | • Remove the air filter from the engine, clean, dry and replace. (or after working in dusty conditions)                                                                                                                                                                                                                                                                                                                                                                                             |
| Every 50 hours           | <ul style="list-style-type: none"> <li>• Check the battery condition</li> <li>• Check and adjust track tension</li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |

(continued on next page)

| Recommended Maintenance Schedule                                         |                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interval                                                                 | Recommended Maintenance                                                                                                                                                                                                                                          |
| (continued from previous page)                                           |                                                                                                                                                                                                                                                                  |
| Every 100 hours                                                          | <ul style="list-style-type: none"> <li>• Check the hydraulic lines for leaks, loose fittings, kinked lines, loose mounting supports, wear, weather, and chemical deterioration</li> <li>• Check for dirt or debris buildup in the base of the machine</li> </ul> |
| Every 250 hours                                                          | <ul style="list-style-type: none"> <li>• Change the engine oil</li> </ul>                                                                                                                                                                                        |
| Every 400 hours                                                          | <ul style="list-style-type: none"> <li>• Check the fuel lines and connections for deterioration, damage, or loose connections</li> <li>• Replace the hydraulic filter and fluid</li> </ul>                                                                       |
| Every 500 hours                                                          | <ul style="list-style-type: none"> <li>• Replace the air filters</li> </ul>                                                                                                                                                                                      |
| NOTE: Follow any additional recommendations in the Engine Owner's Manual |                                                                                                                                                                                                                                                                  |

### GREASING THE PIVOT POINTS

#### Grease Points:

There are 10 grease fittings on the machine. Figure 16 shows the left side of the machine and the location of 5 fittings. The remaining 5 fittings are at the same spot on the right side of the machine.

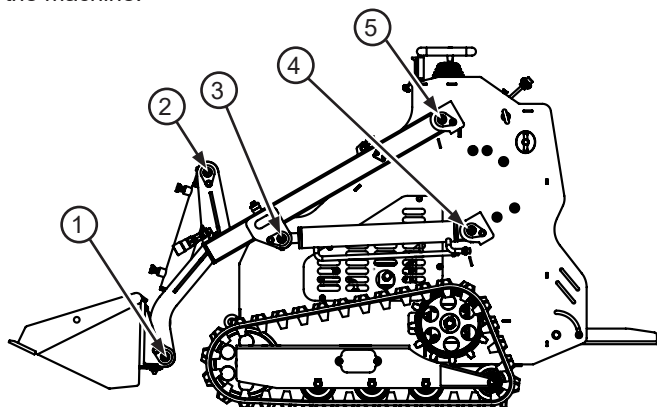


Fig. 16 - Grease Zerk Points

### CLEANING THE TRACKS

1. Park the machine on a level surface.
2. With the bucket installed and angled downward, lower it into the ground so that the front of the traction unit lifts off the ground a few centimeters (inches).
3. Shut off the engine and remove the key.
4. Using a water hose or pressure washer, remove dirt from each track system.



#### WARNING

Use high-pressure water to wash ONLY the track area. Do not use a high-pressure washer to clean the rest of the traction unit. Using high pressure water between the drive sprocket and hydraulic motor may damage the motor seals. High-pressure washing can also damage the electrical system and hydraulic valves or deplete grease.

**Note:** Fully clean the ground wheels, tensioning wheel, idler wheel, and drive sprocket. The road wheels should rotate freely when clean.

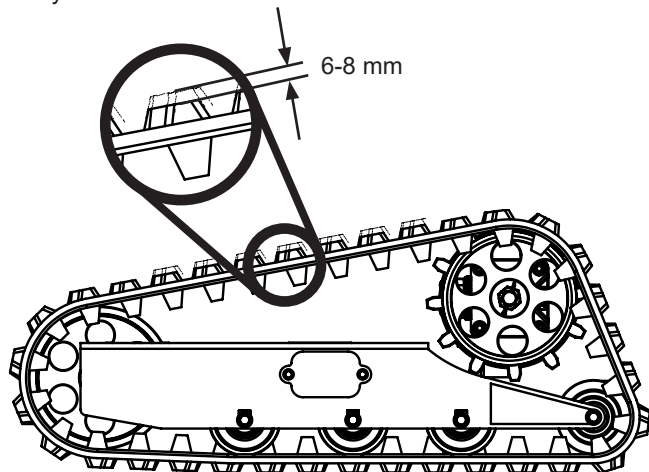


Fig. 17 - Track Tension

### CHECKING AND ADJUSTING TRACK TENSION

**Check the track tension** by pressing firmly on the track at the center between the drive sprocket and front tension wheel as shown in Fig. 17. The correct amount of movement is between 6 and 8 mm (1/4 in. to 5/16 in.).

If the amount of movement is greater than 10 mm (3/8 in.) then follow these steps **to adjust the track tension:**

1. Park the machine on a level surface.
2. Shut off the engine and remove the key.
3. Remove the Track Box Cover Plate (9).
4. Loosen the 31 mm (1-1/4 in.) jam nut on the adjustment screw.
5. Use a 16 mm (5/8 in.) box end wrench to turn the adjustment screw and increase tension on the belt.
6. Tighten the Jam nut on the adjustment screw.
7. Reinstall the Track Box Cover Plate (9).
8. Repeat for the track on the other side.
9. Drive the machine, then check the track tension again, and if necessary, repeat the above steps to re-adjust.

### STORAGE

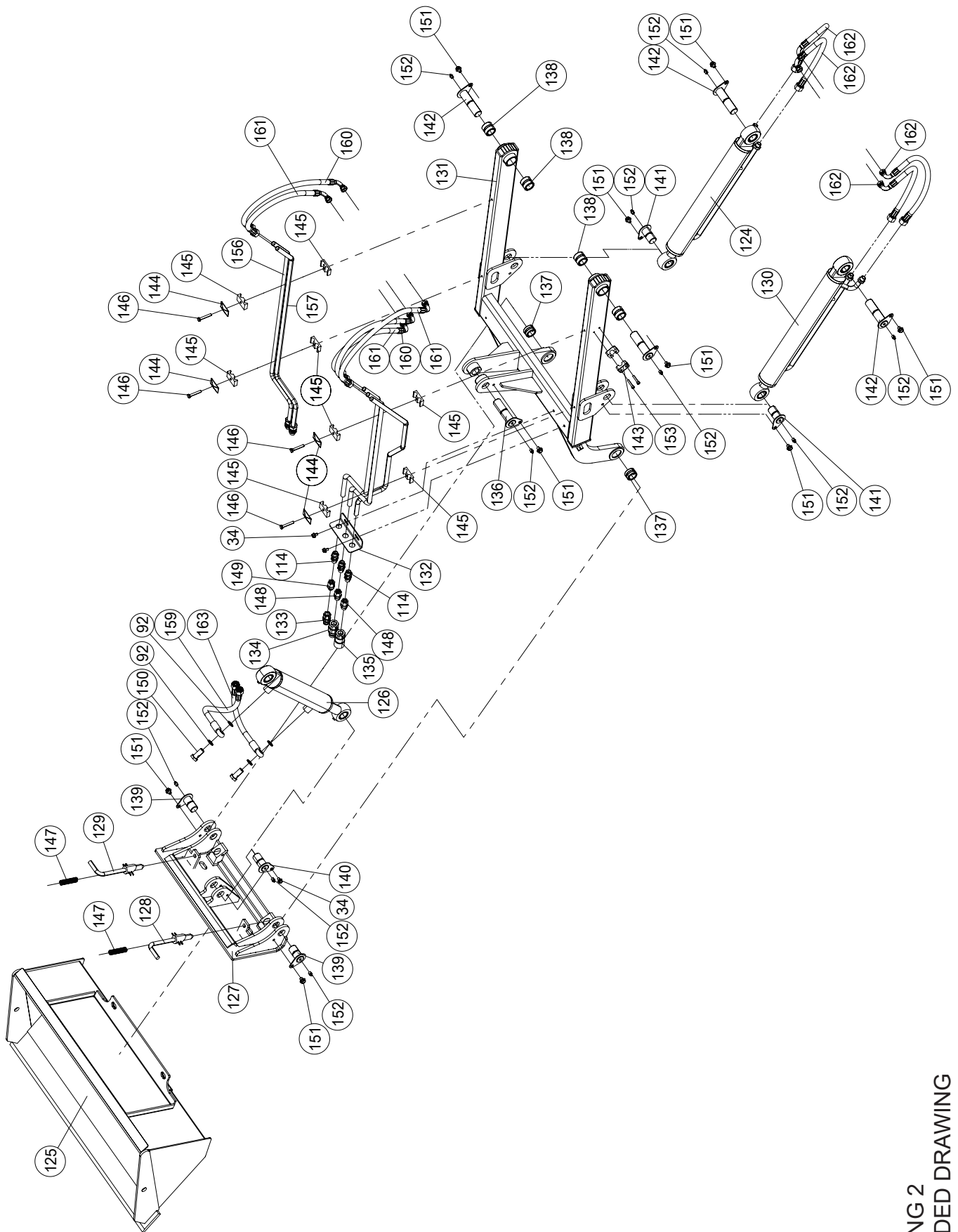
- Park the machine on a level surface, lower the loader arms, and engage the parking brake.
- Shut off the engine and remove the key.
- Remove dirt and grime from the entire machine.

**NOTE:** You can wash the machine with mild detergent and water. Do not pressure-wash the machine. Avoid excessive use of water, especially near the control panel, engine, hydraulic pumps, and motors.

- Apply car wax to painted surfaces at least once a year.
- Use a rust inhibiting paint in areas where the color coating may have chipped or become deeply scratched.
- Apply a coat of lithium grease on all exposed threads, adjustment bolts, and inside nuts or threaded holes that are not being used.
- Service the air filter, refer to the Engine Owner's manual.
- Grease the machine, refer to the section titled *Greasing The Pivot Points*.
- Change the engine oil, refer to the Engine Owner's manual.
- Charge the battery.
- Check and adjust the track tension; refer to section titled *Checking and Adjusting the Track Tension*.
- Check and tighten all fasteners. Repair or replace any worn, damaged, or missing parts.
- Paint all scratched or bare metal surfaces with rust inhibiting paint, if desired.
- Store the machine in a clean, dry garage or storage area. Remove the key from the ignition switch and keep it in a memorable place.
- Disconnect the battery and/or put the Battery-Cutoff Switch (11) in the OFF position.
- Cover the machine with a tarp to protect it and keep it clean.

DRAWING 1  
EXPLODED DRAWING





**BOZEMAN**

DRAWING 2  
EXPLODED DRAWING

## PARTS LIST

| Item | Description                       | Qty |
|------|-----------------------------------|-----|
| 1    | Main Frame Weldment               | 1   |
| 2    | Access Door Assembly              | 1   |
| 3    | Rear Safety Cage                  | 1   |
| 4    | Operator Platform                 | 1   |
| 5    | Track Belt 150-72-36              | 2   |
| 6    | Track Tension Wheel Assembly_L    | 2   |
| 7    | Hinge Leaf                        | 2   |
| 8    | Operator Panel Plate              | 1   |
| 9    | Control Handle Boot Cover         | 2   |
| 10   | Oil Temp Batt Hour Meter          | 2   |
| 11   | Red Indicator Light               | 1   |
| 12   | Fan Light Horn Switch             | 1   |
| 13   | Ignition Switch                   | 1   |
| 14   | Green Indicator Light             | 1   |
| 15   | Pull Choke Knob                   | 1   |
| 16   | Throttle Handle Assy              | 1   |
| 17   | Track Guide Wheel                 | 6   |
| 18   | Track Idler Wheel                 | 2   |
| 19   | Track Drive Wheel 12B             | 2   |
| 20   | Side Access Cover_L               | 1   |
| 21   | Side Access Cover_R               | 1   |
| 22   | Battery 38B20                     | 1   |
| 23   | Access Door Bumper Stop           | 1   |
| 24   | Access Door Latch                 | 1   |
| 25   | Battery Tie Down Plate            | 1   |
| 26   | Access Door Bottom Panel          | 1   |
| 27   | Access Door Prop Arm              | 1   |
| 28   | Battery Mains Cutoff Switch       | 1   |
| 29   | Operator Hand Holds_R             | 1   |
| 30   | Wiring Harness Fuse Block         | 1   |
| 31   | Threaded Rod Battery Clamp M8X225 | 1   |
| 32   | Nut Hex M8                        | 9   |
| 33   | Flat Washer 8×1.6                 | 17  |
| 34   | Bolt Flange Hd M8×12              | 34  |
| 35   | Worklight                         | 1   |
| 36   | Eyebolt Lifting M12×22            | 4   |
| 37   | Nut Hex M12                       | 14  |
| 38   | Bolt Hex Hd M12×70                | 8   |
| 39   | Spring Washer 12×3.1              | 10  |
| 40   | Washer Flat 12×2.5                | 10  |
| 41   | Washer Flat 14×2.5                | 4   |
| 42   | Bolt Hex Hd M14×40                | 2   |
| 43   | Nut Self Locking M14              | 2   |
| 44   | Platform Release Pin              | 1   |
| 45   | Bolt Hex Hd M10×60                | 1   |
| 46   | Nut Hex Hd M10                    | 4   |
| 47   | Spring HB362-65-13.5×34           | 1   |
| 48   | Bolt Flange Hd M12×30             | 12  |
| 49   | Bolt Flange Hd M12×35             | 4   |



## PARTS LIST

| Item | Description             | Qty |
|------|-------------------------|-----|
| 50   | Bolt Flange Hd M10×30   | 5   |
| 51   | Bolt Flange Hd M6×16    | 4   |
| 52   | Bolt Flange Hd M8×20    | 11  |
| 53   | Bolt Flange Hd M6×20    | 10  |
| 54   | Nut Hex M6              | 8   |
| 55   | Track Box Cover Plate   | 2   |
| 56   | Hydraulic Pipe #35      | 1   |
| 57   | Hydraulic Pipe #19      | 1   |
| 58   | Hydraulic Pipe #11      | 2   |
| 59   | T-Joint M18 - 60        | 2   |
| 60   | Hyd Fitting 2EDx18H_M   | 4   |
| 61   | Hydraulic Pipe #12      | 1   |
| 62   | Hydraulic Pipe #15      | 1   |
| 63   | Hydraulic Pipe #14      | 2   |
| 64   | Hydraulic Pipe #43      | 1   |
| 65   | Hydraulic Pipe #44      | 1   |
| 66   | Hydraulic Pipe #53      | 1   |
| 67   | Hydraulic Pipe #42      | 1   |
| 68   | Hydraulic Pipe #18      | 1   |
| 69   | Hydraulic Pipe #32      | 1   |
| 70   | Hydraulic Pipe #47      | 1   |
| 71   | Hydraulic Pipe #48      | 1   |
| 72   | Hydraulic Pipe #4       | 2   |
| 73   | Hydraulic Pipe #6       | 1   |
| 74   | Hydraulic Pipe #7       | 1   |
| 75   | Hydraulic Pipe #46      | 1   |
| 76   | Hydraulic Pipe #49      | 2   |
| 77   | Hydraulic Pipe #10      | 1   |
| 78   | Reservoir               | 1   |
| 79   | Filter Casing           | 1   |
| 80   | Return Filter           | 1   |
| 81   | Oil Sight Glass         | 1   |
| 82   | Oil Filler Cap          | 1   |
| 83   | Screw Flathead M6×8     | 6   |
| 84   | Hyd Fitting 18EDx18H_M  | 5   |
| 85   | Reservoir Output        | 1   |
| 86   | Hyd Fitting 33EDx27H    | 1   |
| 87   | Oil Temp Sensor         | 1   |
| 88   | Hyd Flow Valve KC-03M18 | 2   |
| 89   | Hyd Fitting 18EDx18H_F  | 2   |
| 90   | Hyd Fitting 27EDx30H_M  | 2   |
| 91   | Plug M18x1.5            | 1   |
| 92   | Washer Seal M18         | 5   |
| 93   | Engine R420D Ducar      | 1   |
| 94   | Coupler Shroud          | 1   |
| 95   | Hydraulic Motor 0606    | 1   |
| 96   | Engine Baseplate        | 1   |
| 97   | Anti-Vibe Pad           | 4   |
| 98   | Hyd Fitting 22EDx18H_M  | 2   |

## PARTS LIST

| Item | Description                               | Qty |
|------|-------------------------------------------|-----|
| 99   | Bolt HexHd M10×40                         | 2   |
| 100  | Washer Lock 10×2x6                        | 4   |
| 101  | Washer Flat 10×2                          | 4   |
| 102  | H BOLT 5/16-24-40N                        | 4   |
| 103  | Spring Washer 8×2.1                       | 10  |
| 104  | Shaft Coupler                             | 1   |
| 105  | Exhaust Extension Tube                    | 1   |
| 106  | BMA-375 Hydraulic Motor                   | 2   |
| 107  | Split Pin 4x50                            | 2   |
| 108  | Castle Nut 1-20UNF                        | 2   |
| 109  | Hydraulic Pipe #45                        | 1   |
| 110  | Hydraulic Control Valve Assembly_R        | 1   |
| 111  | Hydraulic Control Valve Assembly_L        | 1   |
| 112  | Hydraulic Pipe #13                        | 1   |
| 113  | Hydraulic Fitting Bulkhead 90deg 6C9-18_M | 4   |
| 114  | Hydraulic Fitting Bulkhead 6C-18          | 8   |
| 115  | Hydraulic Fitting 8EDx18H_M               | 14  |
| 116  | Hydraulic Fitting CC-18 Tri-Port          | 2   |
| 117  | Radiator and Fan Assembly                 | 1   |
| 118  | Oil Temperature Sensor                    | 1   |
| 119  | Hydraulic Fitting 22EDx27H                | 2   |
| 120  | Bolt Hex Hd M10×90                        | 2   |
| 121  | Bolt Hex Hd M12×90                        | 2   |
| 122  | Washer Flat 18×2.5                        | 18  |
| 123  | Bolt Hex Hd M8×70                         | 6   |
| 124  | Lift Arm Cylinder_R Assembly_AltPosition  | 1   |
| 125  | Bucket Attachment                         | 1   |
| 126  | Attachment Plate Cylinder_AltPosition     | 1   |
| 127  | Quick Release                             | 1   |
| 128  | Quick Release Pin L                       | 1   |
| 129  | Quick Release Pin R                       | 1   |
| 130  | Lift Arm Cylinder Assembly_L              | 1   |
| 131  | Lift Arm Weldment                         | 1   |
| 132  | Hydraulic Accessory Hose Bracket          | 1   |
| 133  | Hydraulic Quick Disconnect FF-03-G3-8     | 1   |
| 134  | Hydraulic Quick Disconnect FF-04-G1-2     | 1   |
| 135  | Hydraulic Quick Disconnect FF-04-G1-2     | 1   |
| 136  | Attachment Cylinder Pivot Upper Pin       | 1   |
| 137  | Attachment Plate Bushing 25               | 2   |
| 138  | Lift Arm Upper Bushing 35                 | 4   |
| 139  | Attachment Plate Pivot Pin                | 2   |
| 140  | Attachment Cylinder Pivot Lower Pin       | 1   |
| 141  | Lift Arm Cylinder Fwd Pivot Pin           | 2   |
| 142  | Lift Arm Upper Pivot Pin                  | 4   |
| 143  | Tube Clamp Single Block                   | 2   |
| 144  | Tube Clamp Double Upper Spacer            | 4   |
| 145  | Tube Clamp Double Block                   | 8   |
| 146  | Bolt Hex Hd M8×50                         | 4   |
| 147  | Quick Release Pin Spring HB362-65_15.5×74 | 2   |

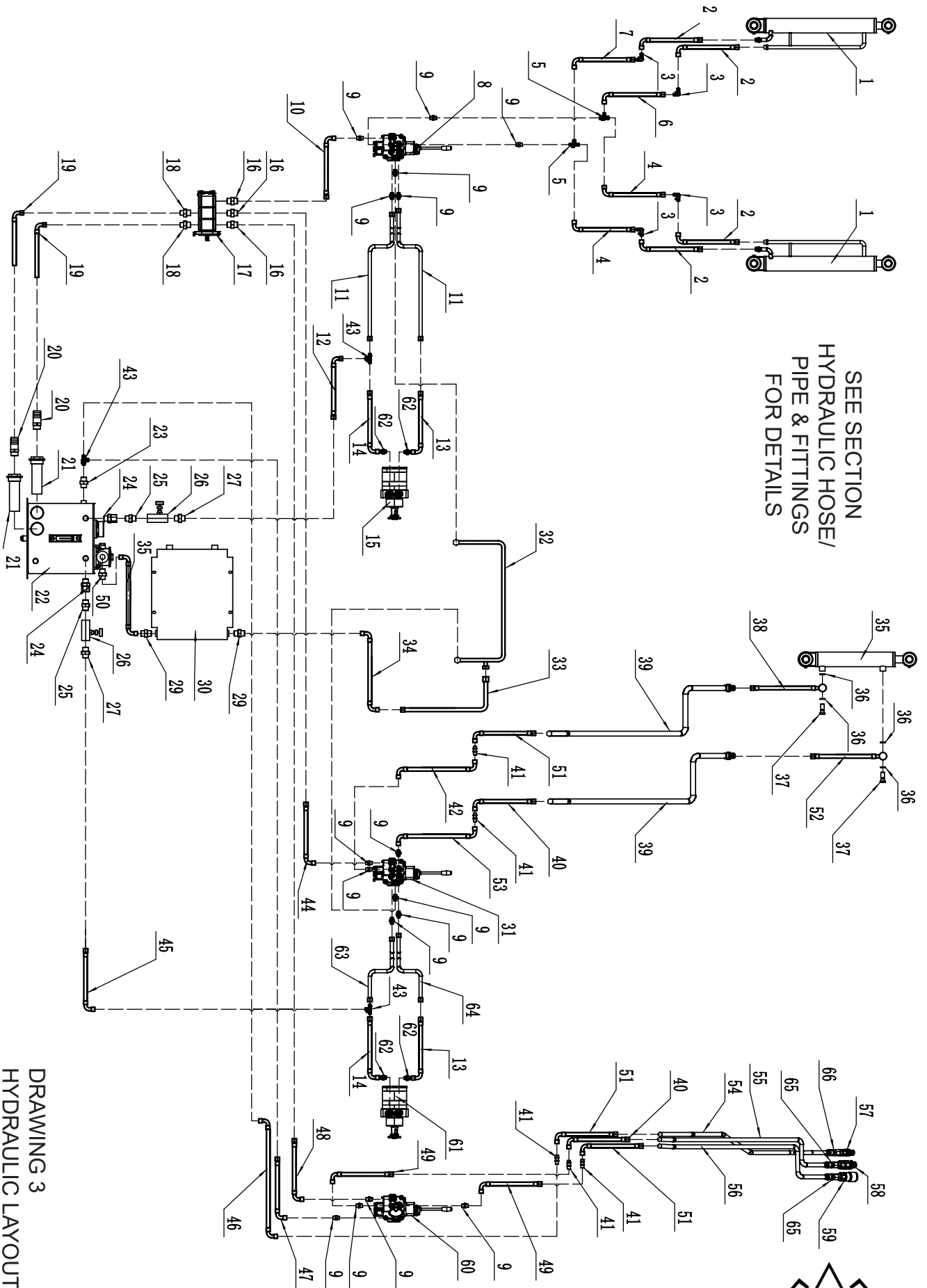


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**PARTS LIST**

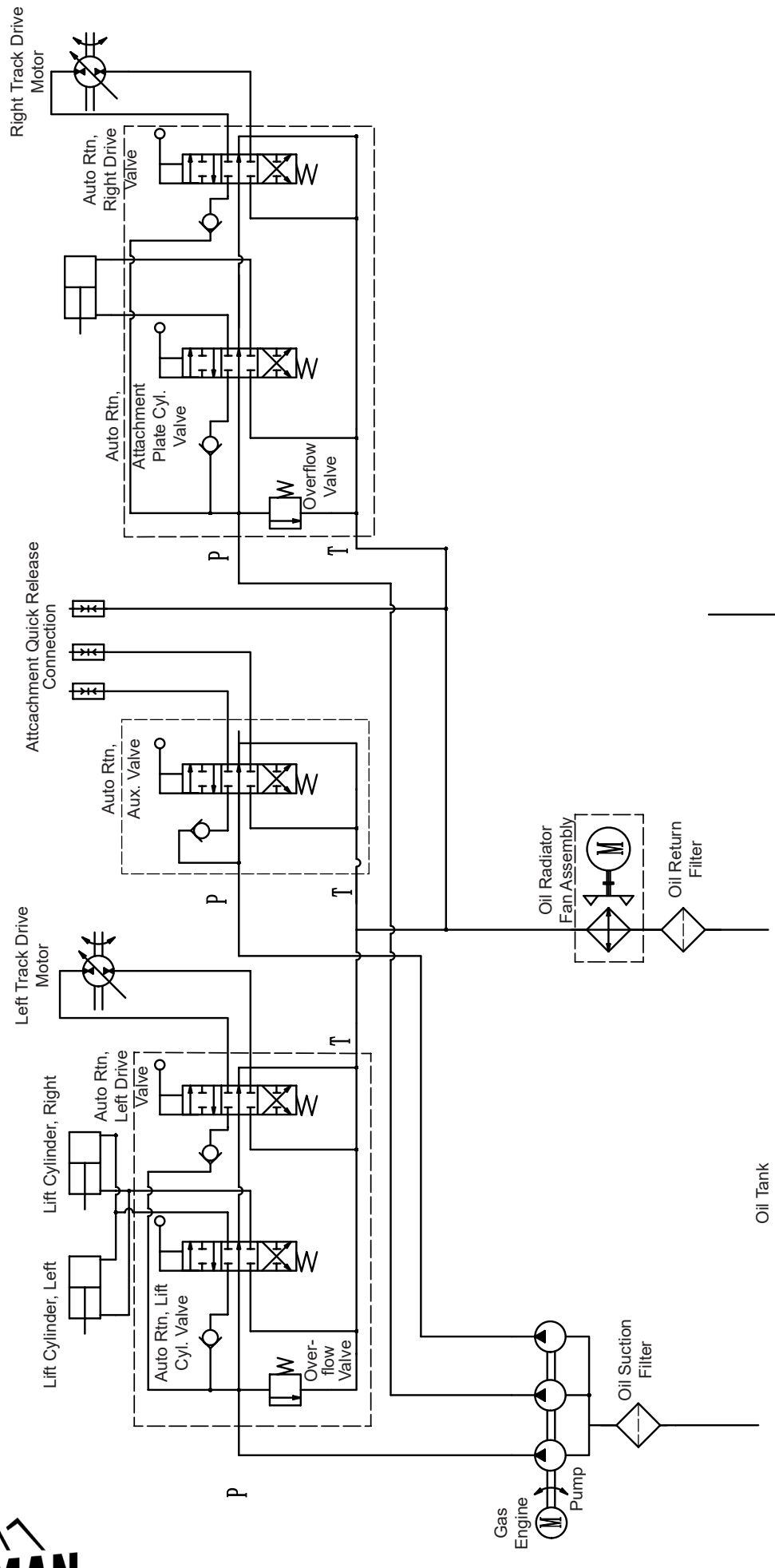
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| Item | Description                                    | Qty |
|------|------------------------------------------------|-----|
| 148  | Hydraulic Fitting 2EDx18H_F                    | 2   |
| 149  | Hydraulic Fitting 8EDx18H_F                    | 1   |
| 150  | Hydraulic Fitting Hollow Bolt Banjo M18x1.5-40 | 2   |
| 151  | Bolt Flange Hd M10×12                          | 9   |
| 152  | Grease Zerk                                    | 10  |
| 153  | Screw Hex Cap M6×35                            | 2   |
| 154  | Hydraulic Pipe #56                             | 1   |
| 155  | Hydraulic Pipe #55                             | 1   |
| 156  | Hydraulic Pipe #39-01                          | 1   |
| 157  | Hydraulic Pipe #39-02                          | 1   |
| 158  | Hydraulic Pipe #54                             | 1   |
| 159  | Hydraulic Pipe #38                             | 1   |
| 160  | Hydraulic Pipe #40                             | 2   |
| 161  | Hydraulic Pipe #51                             | 3   |
| 162  | Hydraulic Pipe #02                             | 4   |
| 163  | Hydraulic Pipe #52                             | 1   |



DRAWING 3  
HYDRAULIC LAYOUT





HYDRAULIC HOSE/PIPE & FITTINGS  
See Drawing 3 Hydraulic Layout

| BOZEMAN 86200 Compact Tool Carrier-<br>Skid Steer |                                                                           |     |              | First Fitting |               |                 |                 |       |               | Second Fitting |                 |                 |       |  |  |
|---------------------------------------------------|---------------------------------------------------------------------------|-----|--------------|---------------|---------------|-----------------|-----------------|-------|---------------|----------------|-----------------|-----------------|-------|--|--|
| Item                                              | Description                                                               | Qty | HOSE<br>SIZE | CONN.<br>SIZE | CONN.<br>TYPE | MALE/<br>FEMALE | RIGID /<br>SWVL | Angle | CONN.<br>SIZE | CONN.<br>TYPE  | MALE/<br>FEMALE | RIGID /<br>SWVL | Angle |  |  |
| 2                                                 | Hose: M18H STR & M18H Bent, 0.52M (20.4 in.) Long                         | 4   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 4                                                 | Hose: M18H STR & M18H Bent, 0.78M (30.7 in.) Long                         | 2   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 6                                                 | Hose: M18H STR & M18H Bent, 0.59M (23.72in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 7                                                 | Hose: M18H STR & M18H Bent, 0.44M (17.3 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 10                                                | Hose: M18H STR & M18H Bent, 0.86M (33.8 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 12                                                | Hose: M18H STR & M18H Bent, 0.37M (14.5 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 13                                                | Hose: M18H STR & M18H Bent, 0.67M (26.3 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 14                                                | Hose: M18H STR & M18H Bent, 0.73M (28.7 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 19                                                | Hose: M30H Bent, 0.51M (20 in.) Long                                      | 2   | 25mm         | M30H          | BSPP          | FEMALE          | SWVL            | 90°   | 25mm          |                |                 |                 |       |  |  |
| 20                                                | M27H Connector                                                            | 2   |              |               |               |                 |                 |       |               |                |                 |                 |       |  |  |
| 32                                                | Iron Tube: M18H STR & M18H STR; M27H STR                                  | 1   |              | M18H/M27H     | BSPP          | FEMALE          | SWVL            | STR   |               | M18H           | FEMALE          | SWVL            | STR   |  |  |
| 33                                                | Iron Tube: M27H STR & M27H STR                                            | 1   |              | M27H          | BSPP          | FEMALE          | SWVL            | STR   |               | M27H           | FEMALE          | SWVL            | STR   |  |  |
| 34                                                | Hose: M27H Bent & M27H Bent, 1.04M (40.9 in.) Long                        | 1   | 16mm         | M27H          | BSPP          | FEMALE          | SWVL            | 90°   | 16mm          | M27H           | FEMALE          | SWVL            | 90°   |  |  |
| 35                                                | Hose: M27H Bent & M27H Bent, 0.62M (24.4 in.) Long                        | 1   | 16mm         | M27H          | BSPP          | FEMALE          | SWVL            | 90°   | 16mm          | M27H           | FEMALE          | SWVL            | 90°   |  |  |
| 38                                                | Hose: M18H STR & Hollow Bolt + Two Sealling Washer, 0.46M (18.1 in.) Long | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | HOLLOW          | SWVL            |       |  |  |
| 39                                                | Iron Tube: M18H STR & M18H STR                                            | 2   |              | M18H          | BSPP          | FEMALE          | SWVL            | STR   |               | M18H           | FEMALE          | SWVL            | STR   |  |  |
| 40                                                | Hose: M18H STR & M18H Bent, 0.6M (23.6 in.) Long                          | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 41                                                | M18H Connector                                                            | 5   |              |               |               |                 |                 |       |               |                |                 |                 |       |  |  |
| 42                                                | Hose: M18H Bent & M18H Bent, 0.5M (19.6 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | 90°   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 43                                                | Tee Joint M18H                                                            | 3   |              |               |               |                 |                 |       |               |                |                 |                 |       |  |  |
| 44                                                | Hose: M18H STR & M18H Bent, 0.62M (24.4 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 45                                                | Hose: M18H STR & M18H Bent, 0.37M (14.5 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 46                                                | Hose: M18H Bent & M18H Bent, 0.5M (19.6 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | 90°   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 47                                                | Hose: M18H STR & M18H Bent, 1M (39.3 in.) Long                            | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 48                                                | Hose: M18H STR & M18H Bent, 0.81M (31.8 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 49                                                | Hose: M18H STR & M18H Bent, 0.49M (19.3 in.) Long                         | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 50                                                | M33ED-M27H Connector                                                      | 1   |              |               |               |                 |                 |       |               |                |                 |                 |       |  |  |
| 51                                                | Hose: M18H STR & M18H Bent, 0.56M (22 in.) Long                           | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 52                                                | Hose: M18H STR & Hollow Bolt + Two Sealling Washer, 0.59M (23.2 in.) Long | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | STR   | 10mm          | M18H           | HOLLOW          | SWVL            |       |  |  |
| 53                                                | Hose: M18H Bent & M18H Bent, 0.59M (23.2 in.) Long                        | 1   | 10mm         | M18H          | BSPP          | FEMALE          | SWVL            | 90°   | 10mm          | M18H           | FEMALE          | SWVL            | 90°   |  |  |
| 54                                                | Iron Tube: M18H STR & M18H STR                                            | 1   |              | M18H          | BSPP          | FEMALE          | SWVL            | STR   |               | M18H           |                 |                 | STR   |  |  |
| 55                                                | Iron Tube: M18H STR & M18H STR                                            | 1   |              | M18H          | BSPP          | FEMALE          | SWVL            | STR   |               | M18H           |                 |                 | STR   |  |  |
| 56                                                | Iron Tube: M18H STR & M18H STR                                            | 1   |              | M18H          | BSPP          | FEMALE          | SWVL            | STR   |               | M18H           |                 |                 | STR   |  |  |



## NOTES

## NOTES

[illegible]

## NOTES

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## 90 DAY LIMITED WARRANTY

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Star Asia-USA, LLC (hereinafter "seller") warrants to the original purchaser only, that this product will be free from defects in material or workmanship for a period of 90 days from date of purchase for home domestic use.

### Warranty Performance

Warranty coverage is conditioned upon purchaser furnishing seller or its authorized service center with adequate written proof of the original purchase date. Products returned, freight prepaid and insured, to our factory or to an Authorized Service Center will be inspected and repaired or replaced, at seller's option, free of charge if found to be defective and subject to warranty. Defective parts not subject to normal wear and tear will be repaired or replaced, at our option during the above stated warranty periods. In any event, reimbursement is limited to the purchase price paid. Other than the postage and insurance requirement, no charge will be made for repairs or replacements covered by this warranty. Under no circumstances shall the manufacturer bear any responsibility for loss of the unit, loss of time or rental, inconvenience, commercial loss or consequential damages, There are no warranties which extend beyond the description of the face hereof.

### Exclusions

This warranty does not cover parts damaged due to normal wear, abnormal conditions, misapplication, misuse, abuse, accidents, operation at other than recommended pressures or temperatures, improper storage of freight damage. Parts damaged or worn by operation in dusty environments are not warranted. Failure to follow recommended operating and maintenance procedures also voids warranty. Additional items not covered under warranty: product failure caused by rain, excessive humidity, corrosive environments or other contaminants; cosmetic defects that do not interfere with product's functionality. This warranty shall not apply when: the product has been used for commercial or rental purposes; defects in materials or workmanship or damages result from repairs or alterations which have been made or attempted by others or the unauthorized use of nonconforming parts; this damage is due to abuse, improper maintenance, neglect or accident; or the damage is due to use of the product after partial failure or use with improper accessories. Warranty does not apply to accessory items. Seller will not be liable for: labor charges, loss or damage resulting from improper operation, maintenance or repairs made by persons other than a Star Asia-USA, LLC Authorized Service Center. The use of other than genuine Star Asia-USA, LLC repair parts will void warranty.

### Warranty Disclaimers

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