Stand-on Compact Loader **X1300**

Operator's Manual

Read the Operator's Manual entirely.When you see this symbol,the subsequent instructions and warnings are serious -follow without exception.Your life and the lives of others depend on it!

Machine Identification

Record your machine details in the log below.If you replace this manual,be sure to transfer this information to the new manual.

If you,or the dealer,have added Options not originally ordered with the machine,or removed Options that were originally ordered,the weights and measurements are no longer accurate for your machine.Update the record by adding the machine weight and measurements provided in the Specifications &Capacities Section of this manual with the Option(s)weight and measurements.

Model Number	
Serial Number	
Machine Height	
Machine Length	
Machine Width	
Machine Weight	
delivery Date	
Frat Operation	
Accessorizes	

Dealer Contact information

Name: _____

Street: _____

City/State: _____

Telephone: _____

Email: _____

Contents

Important Safety Information **1**

Introduction 9

Application 9

Using This Manual 9

Terminolgy 9

Owner Assistance 9

Further Assistance 9

Section 2:Product Overview 10

Machine Component 10

Control Panel 11

Section 3:Operating 14

Before you start 14

Stating The Engine 15

Stating With an Auxiliary Battery 15

Shutting Off the Engine 16

Shutdown Procedure 16

Drive Handle Operation 17

Driving the Machin 17

Forward and Backward 17

Turning 17

Loader Handle Operation 18

Float Function 18

Attachments 19

Connecting an Attachmen 19

Connecting to Auxiliary Hydraulics 20

Disconnecting Hydraulics 21

Safe Operating Practices 21

Precautions While Traveling 2

Precaution When Traveling on Inclines 23

Parking on an Inclines 24

Precautions for Use of Machine Near Water 24

Prohibited Actions 25

Preventing Slippage of Rubber Tracks 26

Operation Under Cold Weather 26

Preparation for Operation in Cold Weather 26

Procedure After Completion of Work 26

Section 4:Transporting 27

Transporting the Machine 27

Loading and Unloading the Machine 27

Loading the Machine 27

Unloading the Machine 28

Lifting the Machine 29

Moving Inoperable Machine 30

Section 5:Maintenance & Lubrieation 31

Maintenance 31
Maintenance Safety 31
Maintenance Interval 32
Maintenance Intervals Table 33
Daily Checks /Every 10 Hours 33
Checking & Adding Fuel 34
Check the Water Separator 35
Check Hydraulic Oil Lever 36
Check Engine Oil Lever 36
Check Coolant Lever 37
Check Grease Point 38
Every 50 Hours 38
Check Air Cleaner Element 38
Check Track Tension 40
Every 100 Hours 41
Check Fan Belt Tension 41
Change the Engine Oil 41
Change the Oil Filter 42
Every 200 Hours 43
Fan Belt Adjustment 43
Every 250 Hours 44
Change Air Cleaner Element 44
Change the Fuel Filter 45
Change Hydraulic Return Filter 46
Change Hydraulic Suction Filter 47
Every 500 Hours 48
Change the Hydraulic Oil 48
Change the Coolant 48
Long -Term Storage 49
Periodic Replacement of Important Parts 50
Fuel & Hydraulic Hose Inspection 50
Fluid Capacities 51
Recommended Fluids 51
Engine oil and fuel grade 52
Lubrication Points 52
Troubleshooting Electrical Wiring Issues 55
Section 6:Specification & Capacities 56
Section 7: Features & Benefits 58
Section 8: Troubleshooting 59
Section 9:Torque Values Char 60

Important Safety Information

Listed below are common practices that may or may not be applicable to the products **described in this manual.**

Safety at All Times

Careful operation is your best assurance against an accident.

All operators,no matter how much experience they may have,should carefully read this manual and other related manuals, or have the manuals read to them,before operating the stand-on compact loader and attachments.

▲Thoroughly read and understand the "Safety Label"section.Read all instructions noted on them.

△Do not operate the stand-on compact lewder while under the influence snugs or alcohol as they impair the ability to safely and properly operate the machine.

▲Operator should be familiar with all functions of the stand-on compact loader and attachments and be able to handle emergencies quickly.

△Make sure all guards and shields appropriate for the operation are in place and secured before operating the stand-on compact loader and attachments.

△Keep all bystanders away from stand-on compact loader and work area

△Start the stand-on compact loader from the operator platform with steering levers and hydraulic controls

in neutral.

▲Never dismount from a moving stand-on compact loader or leave it unattended with engine running.

▲ Do not allow anyone to stand between an attachment and the stand-on compact loader while hooking-up.

▲ Keep hands,feet,and clothing away from power- driven parts.

▲ While transporting and opening equipment, watchoutforobjectsoverheadandalongsidesuchas fences.trees,buildings,wires,eta.

▲Store the stand-on compact loader in a safe and secure area where children normally do not play. When needed,secure attachment from filling with solid,non concrete support blocks.

Look for the Safety Alert Symbol

The SAFETYALERTSYMBOLindleates thorough cottontail hazard to supernal safety and extra precaution must be taken.When you see this symbol,be alert and carefully read the message that
follows ItL Hazard control,and accident prevention are dependent upon the awareness concern,prudence and proper training of personnel involved in the
operation,transport,maintenance,and storage of equipment.

Be Aware of Signal Words

A signal word designate a dog me o hazard seriousness.They are:

ADANGER: indicates a hazardous situation that,i not avoidance,will result in death or serious injury.

AWARNING: Ind intestate hazardous situation that if not avoided,could result in death or serious injury.

A caution: Indicates a hazardous situation that f not avoided,may result **in minor moderator** injury.

Be Aware of Special Notices

Special notices are intended o point ou important and helpful information that should be bobbed They are usually placed Inside a box.They are

IMPORTANT: Indicates that equipment or property damage could result Instructions are not allowed.

NOTE: Indicates supplementary explanations that'll be helpful when using the equipment.

Safety Precautions for Children

Tragedy ean occur if the operator a not alert to the presence of children.Children generally are **attracted to stand-on** compact **loaders and their work**.

- ▲ Never assume children will remain where you last saw them.
- ▲ Keep children out of the work area and under the watch eye of a responsible adult
- ▲ Be alert and shut the attachment and machine don it children enter the wok area.
  not a sale palce let them to ride. They may fall of and be run over or interested with the control of the machine.
- ▲ Never allow children to be operate the power machine,even under adult supervision.
- ▲ Never allow?Wren to play on the machine or attachment
- ▲ Use extra caution when adding up.Before the machine starts to move,look down and behind to make sure the area is dear.

Stand-on Compact Loader Shutdown And Storage

- ▲ Reduce engine speed,park on sold,level ground disengage Barbary hydraulics and lower attachment until t is fat ground or sod non concrete support bods.
- ▲ Tum off engine and turn off the power switch to prevent unauthorized starting
- ▲ Relieve all hydraulic pressures
- ▲ Wait tor for all components to stop before leaving operator platform
- ▲ Carefully step down from the operator platform.

Important Safety Information

Listed below are common practices that may or may not be applicable to the products described in this manual.

Dig Safe-Avoid Underground Utilities

▲ **USA:Call 811**
CAN:digsafecanada.ca
Always contact your local utility companies(electrical,telephone, gas,water,sewer,and others) before digging so that they may mark the location of any underground services in the area.

▲ Be sure to ask how close you can work to the marks they positioned.

Transport Safely

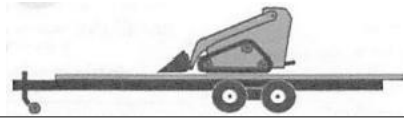
▲ Comply with federal,state,and local laws.

▲ Use towing vehicle and trailer of adequate size and capacity Secure the stand-on compact loader to the trailer with chocks,tie downs,and chains.

▲ Sudden braking can cause a towed trailer to swerve unexpectedly Reduce speed if towed trailer is not equipped with brakes.

▲ Avoid contact with any overhead utility lines or electrically charged conductors.

▲ IMPORTANT:Do not tow a load that is more than double the weight of the vehicle towing the load.



Operate Safely

▲ Always drive with load on end of loader arms low to the ground.

▲ Always drive straight up and down slopes with heavy end to the stand-on compact loader on the "uphill side.

▲ Engage park brake when stopped on an incline.

Keep Riders Off Machinery

▲ Never carry riders on the stand-on compact loader or attachment.

▲ Riders obstruct operator's view and interfere with the control of the machine.

▲ Riders can be struck by objects or thrown from the machine.

▲ Never use stand-on compact loader or attachment to lit or transport riders.

Practice Safe Maintenance

▲ Understand procedure before doing work.Refer to the Operator's Manual for additional information.

▲ Work on a level surface in a clean dry area that is well-Lit.

▲ Lower attachment to the ground and follow all shutdown procedures before leaving the operator platform to perform maintenance.

▲ Do not work under any hydraulically supported equipment.It can settle, suddenly leak down,or be lowered accidentally.If it is necessary to work under the equipment,securely support it with stands or suitable blocking beforehand.

▲ Use properly grounded electrical outlets and tools.

▲ Use correct tools and equipment for the job that are in good condition.

▲ Allow the machine to cool before working on it.

▲ Disconnect battery ground cable(-) before servicing or adjusting electrical systems or before welding on the machine.

▲ Inspect all parts.Make certain that parts are in good conation & installed properly.
Replace parts on the stand-on compact loader with genuine Kubota parts only.Do not alter this machine in a way which will adversely affect its performance.

▲ Do not grease or oil while the machine is in operation.

▲ Remove buildup of grease,oil,or debris.

▲ Always make sure any material and waste products from the repair and maintenance of the machine are properly collected and disposed.
Remove all tools and unused parts from the machine before operation.

Important Safety Information

These are common practices that may or may not be applicable to the products described in this manual.

Prepare for Emergencies

▲ Be prepared if a fire starts.

▲ Keep a first aid kit and fire extinguisher handy.

▲ Keep emergency numbers for doctor,ambulance,hospital,and fire department near phone.

Wear Personal Protective Equipment(PPE)

▲ Wear protective clothing and equipment appropriate for the job such as safety shoes,safety, glasses,hard hat,dust mask, and ear plugs.

▲ Clothing should it snug without fringes and pull stings to avoid entanglement with moving parts.

▲ Prolonged exposure to loud noise can cause hearing impairment or hearing loss.Wear suitable hearing protection such as earmuffs or earplugs.

▲ Operating a machine safely requires the operator's fullattention. Avoid wearing headphones while operating equipment.

Avoid High Pressure Fluids

▲ Escaping fluid under pressure will penetrate the skin or eyes causing serious injury.

▲ Relieve all residual pressure before disconnecting hydraulic lines or performing work on the hydraulic system.

▲ Make sure all hydraulic fluid connections are properly tightened/torqued and all hydraulic hoses and lines are in good condition before applying pressure to the system.

▲ Use a piece of paper or cardboard,NOT BODY PARTS, to check for suspected leaks.

▲ Wear protective gloves and safety glasses or goggles when working with hydraulic systems.

▲ DO NOT DELAY.If an accident occurs,seek immediate emergency medical care or gangrene may result.

Important Safety Information

Listed below are common practices that may or may not be applicable to the products described in this manual.

Avoid crystalline Silica (quartz)Dust

Because crystalline silica Lisa basic component of sand and granite, many activities at construction sites produce dust containing crystalline siliea. Trenching, sawing, and boring of material containing crystalline. silica can produce dust containing crystalline silica particles. This dust can cause serious injury to the lungs(silicosis).

There are guidelines which should be followed if crystalline silica (quartz)is present in the dust.

▲ Be aware of and follow OSHA (or other local,State,or federal) guidelines for exposure to airborne crystalline silica.

▲ Know the work operations where exposure to crystalline silica may occur.

▲Participate in air monitoring or training programs offered by the employer.

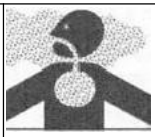
▲ Be aware of and use optional equipment controls such as water sprays, local exhaust ventilation, and enclosed cabs with positive pressure air conditioning if the machine has such equipment. Otherwise respirators shall be worn.

▲ If possible, change into disposable or washable work clothes at the work site;shower and change into clean clothing before leaving the work site.

▲ Do not eat, drink, use tobacco products. or apply cosmetics in areas where there is dust containing crystalline slice.

▲ Store food, drink, and personal belongings away from tie work area.

▲ Wash hands and face before eating, drinking. smoking, or applying cosmetics after leaving the exposure area.



▲ Where respirators are required, wear a respirator approved for protection against crystalline silica containing dust. Do not alter respirator in any way. Work on who use tight-biting respirators can not have beards mustaches which interfere with the respirator seal to the face.

Handle Chemicals Properly

▲ Protective clothing should be worn.

▲ Handle all chemicals with care.

▲ Follow instructions on container label.

▲ Agricultural chemicals can be dangerous. Improper use can seriously injure persons, animals, plants, soil, and property.

▲ Inhaling smoke from any type of chemical fire can be a serous health hazard.

▲ Store or dispose of unused chemicals as specified by the chemical manufacturer.

Important Safety Information

Safety &Instructional Labels

Your Stand-on Compact Loader comes equipped with all safety labels in place.They are designed to help you safely operate your machine.Read and follow their directions.

1.Keep all safety labels clean and legible.

2.Refer to this section for proper label placement.Replace all damaged or missing labels.Order new labels from your nearest dealer.

3.Some new equipment installed during repair requires safety labels to be fixed to the replaced component as specified by 1300.When ordering new components make sure the correct safety labels are included in the request.

4.Refer to this section for proper label placement.To install new labels:

a.Clean surface area where label is to be placed.

b.Spray soapy water onto the cleaned area.

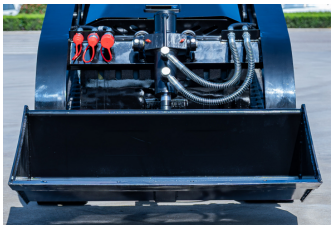
c.Peel backing from label and press label firmly onto the surface.

d.Squeeze out air bubbles with edge of a credit card or with a similar type of straight edge.

Safety and Instructional Decals

888-001

When the loader is in operation,people should not stand on the bucket.
2-Places(Opposite directions)



888-002

Burn hazard,Gloves should be worn when plugging and unplugging connectors,and the process should be carried out following the instructions provided in the manual.

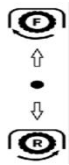
Important Safety Information

888-003

Lift points.2-Places(on each side of the operator platform)

888-010

Tie-down points.2-Places (on each side of big arm)



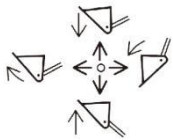
888-004

Attachment control lever.
R:reverse rotation,
F:forward rotation.

Drive control instruction.

888-007

Loader control instruction.



Important Safety Information

888-006

Precautions/Cautions

Please refer to the manual at any time.

When the loader is in operation, non-operating personnel must keep away from the loader

Operators can wear earplugs or headphones to reduce the noise generated by the loader's engine.

When going downhill,do not raise the loader's boom.

When going uphill,avoid lifting the loader's boom.

Operating the loader laterally on slopes steeper than 15 degrees is not allowed

It is not allowed to drive the loader up or down slopes that are more than 15 degrees.

Stop the loader steps:

1.Park

2.Turn the key counterclockwise,the engine shuts off.

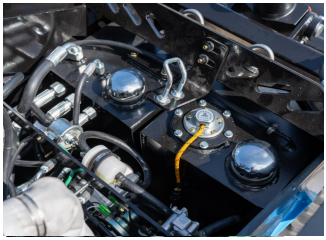
3.Remove the key.

4.After the operator leaves,the bucket should be returned to its original position.

888-008

Make sure to put on gloves before touching to prevent burns.

Important Safety Information



888-009

Fire hazard.Diesel fuel only.Keep ignition sources away burns.

Precautions/Cautions

Caution: Bel inch hazard! Operators should not touch the belt while the engine is running.

Caution:Risk of crushing!Operators must not enter the bottom of the loader.

Caution!Prevent hands from being caught in the loader.

Caution:Risk of crushing!Operators must not enter the bottom of the loader.

Caution:Fan can cause hand injuries! Operators must not touch the fan while the engine is running.

Safety lock.

Stop!

Introduction

X1300 welcomes you to the expanding family of proud owners of our newest addition.This stand-on skid steer loader has been meticulously designed and fabricated by skilled craftsmen using top-quality materials.With appropriate maintenance and adherence to safe operating practices,you can anticipate many years of satisfying use from this machine.

Application

1300 Stand-On skid steer Loader is designed for application in commercial or rental sectors. The features of the 1300,complemented by its myriad of attachments,facilitate users in swiftly and efficiently accomplishing landscaping and construction tasks.Its slender width and compact dimensions enable the 1300 to undertake projects in areas inaccessible to larger power units.Employing optional attachments, tasks like excavation,material handling,trench digging, and back filling become more streamlined when utilizing the 1300.

1300 boasts a rated operating capacity of 1,000 pounds(454kg),hydraulic flow of 15gpm(57 liters per minute),and exerts less than 4 pounds per square inch (psi)of ground pressure.Equipped with a powerful 24.8 HP(18.5 KW)Kubota or Perkins diesel engine,the machine offers class-leading speeds and reach.These attributes,among many others,render this stand-on compact loader an ideal choice for landscapers, contractors,or "do-it-overenthusiastic

NOTE:This machine has patent applications pending.

Using This Manual

- This Operator's Manual is intended to assist you in becoming familiar with safety procedures, operational instructions, adjustments, troubleshooting,and maintenance.Please read this manual carefully and adhere to its recommendations to ensure safe and efficient operation of the equipment.
- The information contained herein was accurate at the tine of printing.However,some components may undergo minor changes to ensure optimal performance.
- To order a new Operator's Manual contact your authorized dealer.

Terminology

The terms "right"and "left"as used in this manual refer,by default,to the right and left sides respectively as viewed from the operator's position on the standing platform while facing the direction of travel,unless otherwise specified.

Owner Assistance

At the time of purchase,the online warranty registration should be completed by your dealer.This information is vital to providing you with premium customer service.The components of your equipment are specifically designed by Power lift and must be replaced with genuine Power lift parts when necessary. Should you require customer service or repair parts, please contact your local Power lift dealer.Your Power lift dealer is equipped with trained personnel,spare parts, and the tools necessary to service this machine.

Further Assistance

Your dealer hopes that you are satisfied with your new stand-on compact loader.Should you encounter any confusion regarding the manual content or dissatisfaction with the service received,consider taking the following steps:

1.Inform the dealership's service personnel about any issues with your machine so they can initiate a resolution.

2.If the issue remains unresolved,directly approach the owner or general manager of the dealership, elaborate on your concerns or questions,and request their intervention.

Section 2:Product Overview

Machine Components

Please refer to Figure 2-1:

Your stand-on skid steer loader incorporates innovative and cutting-edge technological features Familiarizing yourself with the placement and operation of these features will enhance your experience in operating the 1300. Kindly acquaint yourself with the key characteristics outlined below.

1. Attachment hitch plate
2. Auxiliary hydraulic couple's
3. Curl cylinder
4. Hood
5. Tie-down point
6. Track
7. Loader arm
8. Lift cylinder
9. Operator platform
10. Control monitor
11. Control panel

Figure 2-11300 Features

Section 2:Product Overview

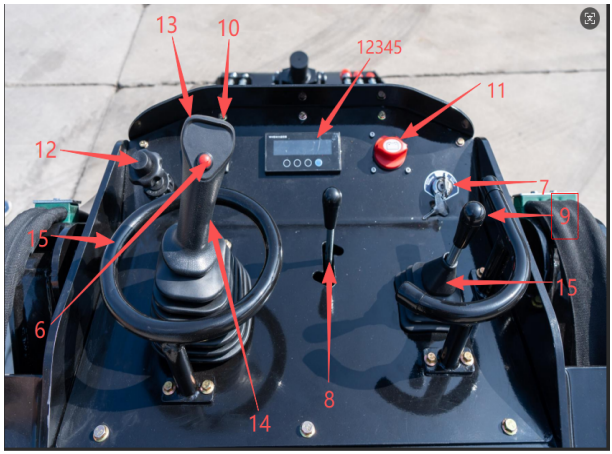


Figure 2-2 Control Panel

Control Panel

Refer to Figure 2-2:

Power switch(#7)

Figure 2-2-1

●STARTERSWITHCONTACT :Turn off the power.

●START DEMARRAGE: Engine starts,machine operates.

●PREHEAT PRECHAUFFAGE:Turn the key to the "PREHEAT PRECHAUFFAGE"position and do not let go,holding it for about 10 seconds.This process is to preheat the engine block.

When the key is turned to the position indicated in Figure 2-2-2,the power supply is activated.

Figure 2-2-2

Loader control handle(#9)

The loader control handle is used to operate the machine's curl cylinder and lift cylinders.The curl cylinder tilts the bucket or other attachments forward and backward.The lift cylinders are responsible for raising and lowering the loader arms refer to figure2-2-4.

Figure 2-2-3

Figure 2-2-4

Throttle lever(#12)

Engine speed will increase when the throttle lever is rotated counterclockwise and decrease when rotated

Figure 2-2-5

Figure 2-2-6

1. When rotating in the release direction,it indicates applying throttle,as shown in Figure 2-2-5.
2. When rotating in the lock direction,it signifies reducing the throttle,as illustrated in Figure 2-2-6.

A method for alternating the throttle between its minimum and maximum values:

Figure 2-2-7

The operator can achieve settings between the maximum and minimum throttle values by pressing down on the top of the throttle with their hand and moving it up and down in a reciprocating motion.As shown in Figure 2-2-7.

Grip Handles(#15)

Grip handles are installed on the control panel to assist the operator in stabilizing themselves during rough conditions.

Drive control handle(#14)

The drive control handle controls the machine's maneuverability.See" **Drive Handle Operation** on page 18 for detailed instructions

Diesel Fuel Gauge(#2)

Hydraulic Oil Temperature Gauge(#3)

Hour Meter(#5)

Fault signal indicator light(#1)

Water temperature and oil temperature indicator light:
When the water temperature reaches 100 degrees Celsius,the indicator light will turn on.At this point,please attend to cooling measures.

Battery fault indicator light:
The light will automatically turn on after the engine starts,and it will not illuminate if there is a fault with the generator or the wiring.In such cases,the circuits should be inspected promptly

Engine oil failure light:
The light will illuminate when the engine oil pressure is less than 0.06 M Pa.At this time,you should promptly check for engine issues.

Engine oil preheating indicator light:
The indicator light will illuminate when the switch key is set to the preheat position,indicating that the cylinder block is undergoing heating.

Attachment Control Lever(#8)

R: R gear position indicates the attachment operation mode for reverse rotation.

F: F gear position indicates the attachment operation mode for forward rotation.

Headlight Switch(#10)

D The headlights turn on when the upper button is pressed and turn off when the lower button is pressed.

Engine Stop Button(#11)

Press and hold the upper button until the engine stops,then release.

Horn(#13)

Volt Meter(#4)

NOTE:

The normal voltage range for the battery is 11-14 volts. If the voltage falls below this range,it indicates that the battery is in a discharged state and requires charging before operating the loader.Refer to Figure 2-2-12.

Section 3:Operating

Before you start

DANGER

- When operating the machine under objects such as doorways or beneath large branches,check for adequate clearances.Be mindful of overhead utilities and electrical lines,and ensure that all underground lines are marked if excavation is to occur.
- Prior to operation,confirm that all guards and shields are properly installed and functioning correctly.

WARNING

To prevent serious injury or death,observe the following:

- Familiarize yourself with the safe operation of the machine.
- Understand the machine's controls.
- Only permit individuals who have thoroughly read and understood this manual and have received proper training in the safe operation of this equipment to operate the machine.Failure to read,understand,and follow the instructions provided in this manual can result in severe injury or death.
- Wear all necessary personal protective equipment for your head,hands.feet,eyes,and ears.The machine can generate noise loud enough to cause hearing damage when ears are exposed for extended periods without protection.
- Verify that the operator presence control and all safety guards are functioning properly.
- Get acquainted with the worksite and be aware of any potential obstacles you may encounter.
- Ensure the work area is clear of people and animals.

Hazard control and accident prevention rely on awareness,attentiveness prudence,and proper training during the operation,transportation,maintenance,and storage of the stand-on skid steer loader.Consequently, it is imperative that no individual operates the stand-on compact loader without first thoroughly reading, comprehending,and becoming intimately familiar with the Operator's Manual.Ensure that the operator pays particular attention to the following points:

·**Important Safety Information,page 5**
·Section 2:Product Overview,page 10
·Section 3:Operating,page 14
·Section 5:Maintenance &Lubrication,page 31

Before operating your stand-on skid steer loader,please carry out the following Operating Checklist.

Operating Checklist

Check	Ref.
Make sure there are no hydraulic leaks on the unit Refer to“Avoid High Pressure Fluids”.	**Page 3**
Check the condition of the safety labels and carefully read and follow all safety rules.Refer to “Safety Decals".	Page 5
Make sure to get familiar with the stand-on skid steer loader feature parts and controls.Refer to "Section 2:Product Overview".	Page 10
Read and follow all operating procedures.Refer to “Section 3: Operating".	Page 14
Check the machine's fluid levels and perform all daily and scheduled maintenance and lubrication. Refer to “Section 5:Maintenance & Lubrication”.	**Page 33**
Check for loose hardware initially **and periodically.** Refer to“Section 9:Torque Values **Chart".**	Page 60
Go around the machine and check for visual damage and wear.	

Section 3:Operating

Starting The Engine

DANGER

To avoid serious injury or death:

- Do not operate the machine in an enclosed area without proper ventilation.

WARNING

To prevent serious injury or death:

- Always start the engine from the operator's station. Never start the engine while standing beside the machine.
- Ensure no one is nearby before starting the engine.
- Operators should not rely solely on warning lights but must always conduct the pre-operation checklist. Refer to the "Operating Checklist"on page 14 for details.

IMPORTANT:Do not use starting fluid or ether.

IMPORTANT :To avoid overloading the battery and starter motor,refrain from cranking the engine for more than 10 seconds.If the engine does not start within 10 seconds,wait at least 20 seconds before attempting to start again.If the battery is dead and requires jump-starting with jumper cables connected to another battery,ensure that a 12V battery is used.Never use a 24V battery.

Follow these steps to start the engine:

1.Set the throttle lever to the low idle position.

2.Flip the power switch to the on position.

Please follow these steps to operate:

- Under normal conditions,turn the key to the far right position to start the engine.
- In cold conditions,turn the key to the far left position, which is the preheat setting.The preheat indicator light will turn red.Wait 5-10 seconds before starting the engine.After starting,allow the engine to warm up for approximately 5 minutes under no load.If the hydraulic oil temperature is too low,it can affect the operation or functionality of the pilot controls.Do not operate the machine at full load until the engine has adequately warmed up.

Starting With an Auxiliary Battery

Refer to Figure 3-1:

WARNING

To avoid serious injury or death:

- Do not smoke and keep away from sparks and open flames.Battery gases can explode.
- If the machine's battery is frozen,do not attempt to start the engine with a booster battery.

When using a booster battery,follow these guidelines:

1.Park the rescue vehicle with a similar voltage battery as close to the machine as possible.

IMPORTANT:Machines must not touch each other.

2.Turn off the engine of the rescue vehicle.

3.Wear safety goggles and rubber gloves.

4.Ensure the vent cap is securely in place (if equipped).

5.Connect one end of the red jumper cable to the positive(+)terminal of the dead battery,and the other end to the positive(+)terminal of the auxiliary battery.

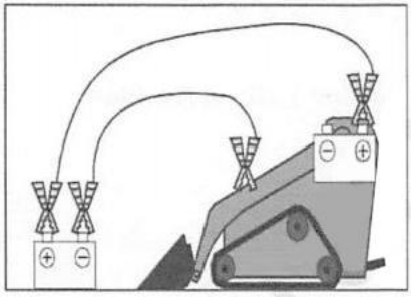
6.Attach one end of the black jumper cable to the negative (-)terminal of the auxiliary battery,and the other end to a conductive part of the machine's frame (bare metal),as far away from the dead battery as possible .

IMPORTANT: Do not connect the black jumper cable to the negative(-)terminal of the machine's

Section 3:Operating

7.Start the engine of the rescue vehicle and let it run for a while.Then,attempt to start the vehicle with the discharged battery.

8.Disconnect the jumper cables in the reverse order of connection.



Auxiliary Battery Connection Figure 3-1

IMPORTANT NOTICE:This machine utilizes a 12-volt starting system with a negative ground(-). When employing an auxiliary battery,it is essential to use a matching voltage.Utilizing a higher voltage can inflict severe damage to the electrical system. Consequently,when using an auxiliary battery,only a compatible (identical)voltage is permissible.

Shutting Off the Engine

WARNING

To prevent serious injury or death:

- Prior to turning off the engine,ensure the loader arms are fully lowered.Do not leave the bucket or attachment raised,as the controls could be inadvertently activated,leading to severe accidents
- Position the machine on level,flat ground.

Shutdown Procedure

Below are the basic shutdown steps for the 1300 Stand-On Skid Steer Loader.Please follow these procedures before exiting the operator platform:

1.Park the loader on stable and level ground.

2.Gradually reduce the engine speed.

3.Return the attachment control lever to neutral(if applicable).

4.Lower the loader arms and attachment (if applicable) until they rest flat on the ground or on non-concrete support blocks.

5.Press the "Stop"button on the operation panel to shut off the engine,and then turn the power switch to the off position.

6.Ensure that all moving parts have come to a complete stop before leaving the operator platform

IMPORTANT: Allow the engine to idle at low throttle for 1-2minutes before shutting it off.This aids in cooling the engine prior to shutdown.In case of an emergency,you may immediately turn off the engine by switching off the power switch.

Section 3:Operating

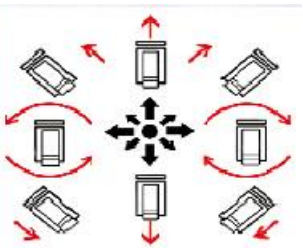


Figure 3-2

Drive Handle Operation

Refer to Figure 3-2:

Use the drive handle to control the movement of the machine.The harder you push or pull the drive handle in any direction,the quicker the machine will travel in that direction.For optimal performance operate the machine at full throttle

IMPORTANT: It's best to gradually release the drive handle when intending to stop. Suddenly letting go of the drive handle while the vehicle is in motion can cause a jolting motion.

Driving the Machine

WARNING

To prevent serious injury or death:

- Avoid abrupt stops or sudden changes in travel direction,especially when descending slopes.The steering system is designed for sensitive responsiveness;rapid movements of the drive handle can result in reactions that may cause severe injuries.
- Do not make sudden changes in speed.Always gently push the drive handle to prevent abrupt variations in velocity.
- While operating the machine,constantly be aware of your surroundings.The operator must continuously be vigilant of any obstructions, impediments,bystanders,and animals.
- Drive responsibly;terrain conditions can affect the machine's traction and the operator's control Reduce speed on uneven,rough,wet,slippery surfaces,or when traversing holes,loose soil, sand,gravel,or other unstable terrain
- When reversing,look behind for obstacles, impediments,bystanders,and animals.
- Do not drive the machine on roadways;it is not equipped for safe travel on roads.
- Be mindful of people and animals in the work area when altering directions
- Ensure the bucket or attachment is lowered to the ground as much as feasible without it catching on the surface

Forward and Backward

To travel forward,push forward(7)on the drive handle as indicated in "**Figure 3-2"**

To move backwards,push backwards(3)on the drive handle as shown in"**Figure 3-2"**.

Turning

1.To turn right,tilt the drive handle upwards to the right (6)as indicated in"Figure 3-2".

2.To turn left,tilt the drive handle upwards to the left(8) as shown in "Figure 3-2".

3.To pivot left in place,push the drive handle horizontally to the left(1)as indicated in "Figure 3-2".This action will cause the loader to rotate continuously to the left on the spot until the handle is returned to its original position.

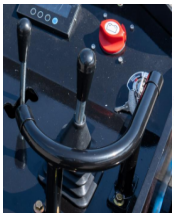
4.To pivot right in place,push the drive handle

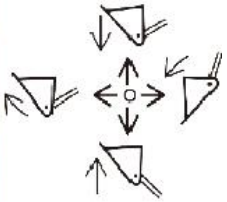
Section 3:Operating

5.horizontally to the right(5)as showing"**Figure 3-2".** This action will cause the loader to rotate continuously to the right on the spot until the handle is returned to its neutral position.

6.To turn backwards to the right,push the drive handle downwards and to the left(2)as illustrated in"**Figure** 3-2".

7.To turn backwards to the left,push the drive handle downwards and to the right(2)as depicted in"**Figure** 3-2".





1.Lower arms 2.Raise arms **3.Tilt forward**
4.Tilt back **5.Lower arms/tilt forward**
6.Lower arms/tilt back 7.Raise arms/tilt forward
8.Raise arms/tilt back

Figure 3-3

Loader Handle Operation

Refer to Figure 3-3:

WARNING

To prevent serious injury or death:

- Do not exceed the rated operational capacity of the machine.
- Exercise caution when operating with a bucket or other lifting attachments;avoid tilting the bucket/attachment fully backward when the loader arms are fully raised,as materials could fall back onto the operator

1.Tilt the attachment forward by slowly moving the loader handle to the right.

2.Tilt the attachment backward by slowly moving the loader handle to the left

3.Lower the loader arms by slowly moving the loader handle forward.

4.Raise the loader arms by slowly moving the loader handle backward.

5.To operate the loader arms and tilt at the same time,maneuver the loader handle toward positions 5,6,7 or 8.See **Figure 3-3.**

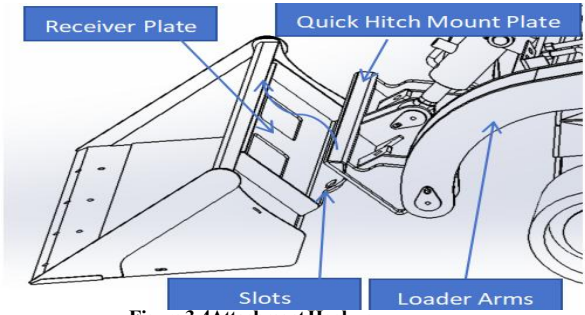


Figure 3-4Attachment Hookup

Attachments

WARNING

To avoid serious injury or death,observe the following:

- Use -approved attachments with this machine.Using attachments from other brands may create an unsafe operating environment and/or cause damage to the machine.
- Do not modify attachments or replace parts on the attachment with those from other brands. Parts from other brands may not fit correctly or meet the original equipment manufacturer's (OEM)specifications.They can compromise the integrity and impair the safety,functionality, performance,and longevity of the attachment. When replacing parts,use only components.

A range of -approved attachments is available for use with the stand-on skid steer loader: X1300 attachments help expand the capabilities of the stand-on skid steer loader. Please contact your X1300 dealer for a list of approved attachments.

Connecting an Attachment
Refer to Figure 3-4&Figure 3-5:

This machine utilizes a CII hitch mounting plate for easy connection and disconnection of various attachments.

WARNING

To avoid serious injury or death:

- A crushing hazard exists when hooking-up and unhooking the attachment.Do not allow anyone to stand between attachment and power machine while approaching or backing away from the attachment Do not operate hydraulic control while someone is near the power machine and/or attachment.
- The hitch latch pins on the quick-hitch mount plate must protrude into and through the pin slots of the attachment on both sides.It is critical that the pins are in good condition and without visible signs of wear or damage and that the Operator align the quick-hitch mount plate with the attachment to allow the pins to go through the pin slots.Do not operate the machine or attachment unless all of the above conditions are met.

WARNING

To avoid serious injury or death:

- Frequently inspect the hitch assembly.Improper assembly can cause the attachment to become loose from the loader hitch plate and fall.
- Never operate or transport attachments that are not fully secured.
- Always visually inspect for broken or damaged pins and replace any compromised hardware immediately.

Section 3:Operating

CAUTION:When attaching or detaching attachments from the quick-hitch mount plate, ensure the attachments are placed on a level and solid surface.

1.To install the attachment,rotate the handles outward to place the hitch latch pins in he unlocked position.Ensure the hitch latch pins are fully raised to ensure a proper connection. Refer to Figure 3-5.

2.Position the machine directly in front of the attachment and tilt the quick-hitch mount plate forward using the loader lever.

3.Carefully slide the edge of the quick-hitch mounting plate into the lip of the attachment's receiving plate.Refer to Figure 3-4.

4.Roll the quick-hitch mount plate backward using the loader lever and raise the lift arms slightly.The rear of the attachment's receiving plate should rest against the front of the quick-hitch mounting plate,with the weight of the attachment supported by the loader arms.

5.After the attachment is correctly seated,shut off the engine.Rotate the loader lever to move the hitch latch pins inward,setting them in the locked position.Confirm that both pins are fully engaged and pass through the slots on the attachment base.Refer to Figure 3-5.

6.Visually confirm while pushing the hitch latch pins into the locked position that the pins protrude through the slots on the attachment.

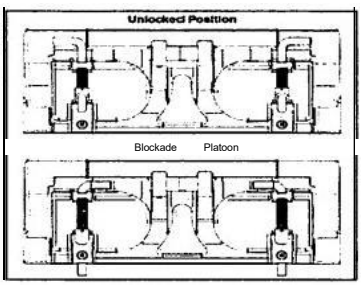


Figure 3-5 Hitch Latch Pins

Connecting to Auxiliary Hydraulics

Refer to Figure 3-6:

If connecting an attachment that operates with auxiliary hydraulics,adhere to the following instructions.

WARNING

To prevent serious injury or death:

- Ensure the engine is stopped and pressure relieved before connecting or disconnecting hydraulic lines.
- High-pressure hydraulic fluid can penetrate the skin and/or eyes,causing severe injury.Wear protective gloves and safety glasses or goggles when working with hydraulic systems.Use a piece of cardboard or wood instead of hands when checking for leaks.Injuries of this nature must be treated by a doctor familiar with such trauma within a few hours,or gangrene may occur.DO NOT DELAY.

CAUTION

To prevent minor or moderate injuries:

Hydraulic couplings,valves,lines,and fluid may become hot and can burn you upon contact.Wear gloves when handling hydraulic components.

Connecting Hydraulics(Refer to Figure 3-6)

1.Turn off the engine.

2.Move the attachment lever up and down several times to relieve pressure in the hydraulic lines, as indicated by#7 in **Figure 3-6**.

3.Clean dirt and debris from the surfaces of both male and female couplers,as well as the outer diameters of the machine's and attachment's male couplers.Visually inspect the couplers for corrosion,cracks,damage,or excessive wear.If any of these conditions are present,the coupler must be replaced.

4.Push the attachment's male connector(#5)into the machine's female connector(#3).

5.Push the attachment's female connector(#4) onto the machine's male connector(#1).

Section 3:Operating

6.If applicable,push the attachment's female case drain connector(#6)onto the machine's male connector(#2)

7.Tug on the hoses to ensure the couplers are securely connected.

Disconnecting Hydraulics

1.Lower the attachment to the ground.

2.Shut off the engine.

3.Move the attachment control lever up and down several times to release pressure in the hydraulic lines,

4.Pull back the collars on the female couplers to disconnect the hydraulic hoses from the machine.

5. Separate the couplings.

NOTE:

After each use of the attachment, first shut off the engine, then move the attachment lever up and down several times to relieve pressure in the hydraulic lines, This ensures easy removal of the attachment coupler:When the attachment is needed again, the coupler will also be easier to reinsert.

Figure 3-6Auxiliary Hydraulics Hook-up

Safe Operating Practices

It is absolutely essential that no one operates the machine unless they have read,fully understood and are totally familiar with the Operator's Manual. It is imperative that the Operator comply with the safety instructions and practices and always pay attention to the danger,warning and caution alerts Failure to comply with these instructions and practices may result in injury or death.

To avoid serious injury or death:

- Do not operate this machine under the influence of alcohol or drugs,or if the Operator is ill or excessively tired
- Check clearances when driving under objects such as doorways or large branches.Be aware of all overhead utility and electrical lines as well as having all underground lines marked if digging or trenching will take place.
- Never operate the machine in the vicinity of explosive gases.Always keep exhaust from machine away from any combustible material.
- Do not operate the machine in an enclosed area without proper ventilation.
- Always operate the machine in adequate light that will allow the Operator to identify any holes or other hazards.
- Make sure all guards and shields are installed and in good working condition when operating the machine.
- Keep bystanders and animals away while the machine and/or attachment is in use.A person or animal can be crushed,ran-over,entangled or suffer other serious injury.Stop the machine if anyone enters the work area.
- Never exceed the machine's rated lift capacity. Exceeding the rated lift capacity can result in equipment damage,rollover or other hazards.
- Use caution when raising loads and make sure not to overload the bucket/attachment.Maintain level when raising,as materials can fallback onto the Operator.
- Whenever the machine is in motion,keep the

bucket/attachment as close to the ground as possible.Never change directions when the bucket/attachment is in the raised position.If you must move the machine with the bucket/ attachment raised,take care to travel at low speeds in order to maintain control of the machine at all times.

●Pay attention to weather conditions.Rain or snow can make working conditions difficult and unsafe.Pay particular attention to lightning in your area.Do not operate the machine if lightning is seen,seek shelter.

WARNING

To avoid serious injury or death:

- Only use this machine for its intended purposes.
- Do not operate machine on loose rock or gravel.
- Always avoid working on an incline as the machine can become unstable and rollover.
- Read the attachment Operator's Manual before operating.
- Never use the machine to move material or perform work that exceeds the capacity of the bucket or attachment.
- Transport loads as low to the ground as possible to help prevent losing control of or tipping the machine Practicing this caution will also prevent loads from shifting and falling.
- Do not alter the engine governor to over-speed machine.
- Never leave the machine running and unattended.Shut the machine down using shut down procedures provided in this manual before leaving the operator platform.
- Do not jerk the drive handle or the loader arm/tilt lever Use the grip bars for leverage to help in operating in a steady motion
- Only operate this machine in areas that you can maneuver the machine safely.
- Use only X1300 approved attachments with this machine.Using other brand attachments may create an unsafe operating environment and/or damage the machine.
- Check hitch fit-up frequently.An improper fit-up can cause the attachment to.come loose from the loader hitch plate and fall.

●Never carry riders on the machine or its attachments.Riders can obstruct the Operator's view,interfere with control of the machine,be pinched by moving components,become entangled in rotating components,be struck by objects,be thrown or fall from the equipment, etc.

CAUTION

IMPORTANT:

Never scoop or grade areas while the tilt cylinder s fully extended.Extremely heavy loads apply excessive force to the tilt cylinder and can cause damage.

IMPORTANT:

Avoid hitting attachments against rocks or similar solid material,which can damage the

IMPORTANT:

Never fully extend cylinders to perform an operation.Working while cylinders are fully extended can cause damage from excessive force.

Precautions While Traveling

DANGER

To avoid serious injury or death:

Do not drive this machine down public streets or road ways.This machine is not equipped with turn signals,reflective decals or a slow moving vehicle sign.Therefore,this machine is not fit for public streets or road ways.

- If obstacles,such as rocks,stumps and blocks, cannot be avoided,travel slowly over them with the bucket/attachment in the lowered position. Approach the obstacle so it is at the center of the

- machine to avoid a tipping hazard.
- Whenever traveling over uneven ground surfaces,travel at low speed.Avoid any sudden movements with the machine such as accelerating,stopping,or turning quickly.
- Before backing the machine up,look behind you and look down as well to identify any holes or obstructions.Make sure there are no bystanders around as well.The machine does not make an alert sound when backing-up.
- Use caution and check for traffic when approaching and crossing roads and sidewalks
- Never spin or turn the machine at high speeds.When turning,apply throttle to prevent stalling,but avoid turning too quickly,as this can cause the loader to lose stability.
- Always move the machine at speeds that are appropriate to the conditions.Take particular care if you are moving through areas where view may be obstructed by trees,shrubs,etc.or when transporting hazardous material.
- Never back the machine off of obstacles such as curbs or steps especially with the loader arms arise.Build a ramp with dirt if you will repeatedly encounter these obstacle.See Figure 3-7.

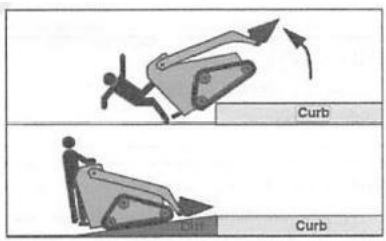


Figure 3-7 Curb Hazard

IMPORTANT:

Running over large debris(rocks,stumps, blocks,etc.)may cause such debris to fly up and damage the machine.Avoid such debris whenever possible.

Precaution When Traveling on Inclines

Multiple factors should be considered for safely traveling on inclines.As a rule of thumb,travel with the heavy end up hill.Also consider ground conditions,speed,brake performance,turning, height of load and Operator skill

DANGER

To avoid serious injury or death:

- Use good judgment when operating on inclines. Various factors and conditions should be considered when determining safe operation on inclines.In general,do not travel on excessively steep slopes under any circumstances.
- Lower the bucket/attachment as low to the ground as possible when traveling on an incline. Lower completely to the ground and stop the machine in case of emergency.
- Always travel at low speed when moving on an incline and avoid turning.Reduce the engine speed(rpm)when moving down an incline. Traveling too fast down an incline can lead to loss of control.Avoid stopping and starting on inclines as it may create a dangerous jerking motion.
- Do not operate near embankments,ditches or drop-offs.
- If the machine begins to tip or lose control,do not try to stabilize the machine by putting your foot on the ground.

To avoid serious injury or death:

- Know and understand the machine capabilities and operating conditions,and never exceed any of these conditions.Keep in mind that poor or difficult working conditions may reduce the capability of the machine,requiring a reduction in speed to maintain stability.
- Operate with the heavy end of the machine facing uphill when traveling either direction on a hill.An empty bucket makes the back end of the machine the heavy end,and a full bucket makes the front end the heavy end.See Figure 3-8.

- Whenever traveling on an incline,be careful of the possibility of sliding sideways or rolling over.
- Never approach an incline horizontally or diagonally.Always return to a flat surface and redirect the machine.
- Beware of unstable and slippery surfaces such as wet grass,leaves,wet metal or ice.The machine can slide very easily even on low grade inclines
- Do not hook-up or unhook an attachment on an incline.
- Avoid obstacles such as rocks,tree limbs or ruts when traveling on inclines. Remove obstructions when possible.

Parking on an Incline

NOTE:

It is best to park the machine on firm, level ground but if you must park the machine on an incline, adhere to the safety alerts below.

WARNING

To avoid serious injury or death:

- Make sure you chock the machine's tracks to prevent any movement.
- Make sure the machine is highly visible when parking near streets by using barriers, appropriate caution signs,lights,etc.to avoid any accident or collision with other vehicles.
- Never leave the machine running unattended or with the lift arms raised.Whenever the lift arms are raised for maintenance,they MUST always be restrained using the lift arm stopper.
- Whenever leaving the machine,perform the proper shut down procedures.Refer to 1300 Shutdown Procedure on page 16.

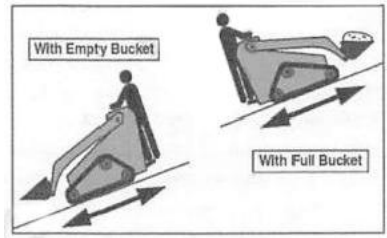


Figure 3-8 Incline Travel

Precautions for Use of Machine Near Water

IMPORTANT:

Whenever working near water,pay attention never to allow the machine to become submerged in water above the bottom of the body,especially the rear where the radiator fan could be exposed to water.Always take care to keep working machine parts out of water,See Figure 3-9.

IMPORTANT:

If parts that require lubrication are exposed to water for long periods of time,make sure they are re-lubricated with grease to remove old grease.

IMPORTANT:

Clean the operator platform after working in muddy conditions

IMPORTANT:

Never allow the main body of the machine to become submerged in water or sand.Contact your X1 dealer if the main body of the machine is exposed to water.

Section 3:Operating

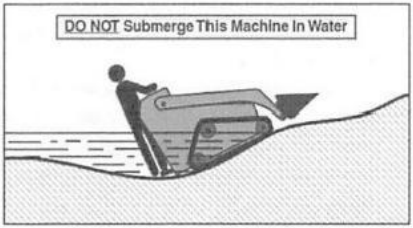


Figure 3-9 Prohibited Water Depth

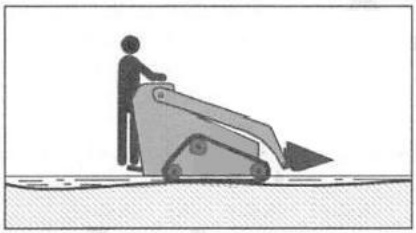


Figure 3-10 Permissible Water Depth

Prohibited Actions

WARNING

To avoid serious injury or death:

- Take care when operating,transporting material or traveling in snowy conditions or on Ice as tracks may slip

IMPORTANT:

Always avoid sudden changes in direction, or spinning on concrete surfaces. Excessive friction on the tracks will cause them to wear out or become damaged.

IMPORTANT:

Always avoid sudden impact to the tracks such as allowing the machine to drop down or hit objects.

IMPORTANT;

Chemicals such as salt,potassium chloride, ammonium sulfate,potassium sulfate,etc.,can damage the track belts.If the tracks are exposed to any of these substances, immediately wash thoroughly with water.

IMPORTANT:

Avoid scraping the rubber tracks along concrete,and other rough surfaces.

IMPORTANT:

Operate machine between -4oF to 113°F(-20°C and +45°C)for proper functioning of rubber track belts.

IMPORTANT:

If machine must be stored for 3 months or longer keep it indoors and out of direct sunlight to prevent UV exposure on rubber or plastic components.

IMPORTANT:

Do not travel on riverbeds and other areas where loose gravel can get into the tracks, causing them to slip off or become damaged.

IMPORTANT:

Never move, transport material or operate the machine in the following places:

Deep mud, broken stone, jagged or unstable base rock, iron beams, iron scraps, iron sheets, etc. Navigating, turning and moving the machine over sharp material may damage or break the tracks.

IMPORTANT:

Do not use near the oceanfront where salt water can corrode the various parts of the machine.

Section 3:Operating

IMPORTANT:

Always prevent fuel,oil,salt or other chemical agents from getting on the tracks, which can cause corrosion to the metal track cores.If the track or undercarriage parts are exposed to such material,immediately remove by using water.

IMPORTANT:

Do not attempt to move material where the surface is unstable and could cause slippage in the tracks.Unnecessary and excessive slipping of tracks will damage and cause abnormal wearing of the tracks.

Preventing Slippage of Rubber Tracks

Always do the following to prevent sip page of rubber tracks:

IMPORTANT:

Make sure tracks are kept at the proper tension.Never change directions when there is excessive slack in the track belts.

IMPORTANT;

When ascending an incline never change direction at the base of the incline.

IMPORTANT:

Always avoid operating the machine with one track on a different surface than the other track, or with one track partially on an incline. Make sure both tracks are on stable, firm surfaces when in motion.

Operation Under Cold Weather

To get optimal performance out of your machine in cold weather conditions,adhere to the following procedures and notes.

Preparation for Operation in Cold Weather

1.Replace engine oil and hydraulic oil with those of viscosity suitable for cold weather.

2.Drain the fuel tank and use the appropriate fuel for cold weather conditions.

3.In cold weather,battery power drops,and the battery fluid may freeze if the battery is not sufficiently charged.To prevent the battery fluid from freezing,be sure to keep the battery charged at least 80%or more of its capacity after operation To ease next starting,it is recommended to keep the battery stored in closed or heated room.

4.The loader come standard with -20#antifreeze. If the local temperature drops below -4F(-20℃),it is necessary to replace it with -30# antifreeze.

- Use long-life coolant.
- Drain the coolant completely and clean the interior of the radiator,then refill with new coolant

Procedure After Completion of Work

Clean the machine thoroughly and wipe dry after work has been completed.Mud and dirt on the tracks could freeze if the temperature drops below 32 F(0℃),making t difficult to operate the machine and/or risk costly damage to the machine Store the machine in a dry place if possible otherwise store on wooden planks,mas or on concrete.If the machine is kept on damp or muddy ground,the tracks could freeze overnight,making it difficult to operate the machine and/or risk costly damage to the machine.Wipe the piston rods,on the hydraulic cylinders dry.Otherwise,severe damage could occur if dirty water seeps through the seals.

Section 4:Transporting

Transporting the Machine

Transport the machine on a heavy duty truck or trailer that is capable of safely hauling the machine. If transporting the machine on a trailer,make sure the vehicle it is attached to has sufficient power to pull the trailer and machine safely.The truck or trailer should be equipped with a full width ramp that is at least 4 times longer than the height of the truck bed or trailer from the ground(see Figure 4-1).Comply with all local ordinances for the trailer and tie-down requirements.Make sure that the truck or trailer has all the required brakes,lights, decals and markings required by local law.

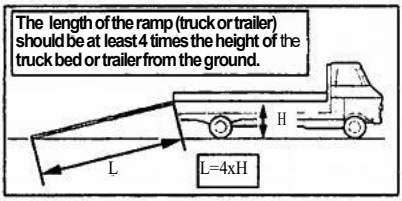


Figure 4-1 Ramp Specs

Loading and Unloading the Machine

DANGER

To avoid serious injury or death:

- Make sure the ramps load capacity is greater than the machine and attachment weight.
- Make sure that the ramp is clean,not damaged and properly attached to the truck or trailer bed

Loading the Machine

Refer to Figure 4-2&Figure 4-3:

Use caution when loading the machine onto a truck or trailer as the possibility of losing control or tipping is increased if done carelessly.

DANGER

To avoid serious injury or death;

- Use extreme caution when loading and unloading the machine on a ramp.
- Position the machine so that the heavy end is going up the ramp first.
- Do not accelerate or decelerate suddenly while on the ramp as this will create a jerking motion that increases the possibility of tipping.
- Avoid turning on a ramp.If you must change direction,go back down the ramp and adjust on flat ground.

  When the machine reaches the point between the ramp and the bed,move very slowly until the machine reaches the horizontal position on the bed.

If transporting with a trailer,start with steps 1 &2.If transporting with a truck,skip to step 3.

1.Hook the trailer up to the vehicle that will haul the machine according to the trailer and vehicle Operator manuals.

2Connect the trailer's safety chains,lights and the trailer brakes if applicable.

3.Lower the ramp to the ground.Make sure the ramp incline is not greater than 15 degrees from the ground and is at least 4 times longer than the height of the truck bed or trailer from the ground (see Figure 4-1)

4.Lower the machine's loader arms down as low as possible without the arms or attachment coming into contact with the ramp.

5.Load the machine with the heavy end going up the ramp first.

- If the machine has no attachment hooked-up to it,the rear end of the machine is the heavy end.
- If the machine has a material carrying attachment hooked-up to it such as a bucket or pallet fork,but with no load on it,the rear end of the machine is the heavy end.
- If the machine has a material carrying attachment hooked-up to it such as a bucket or pallet fork,with a full load on it,the front end of the machine is the heavy end.
- If the machine has an attachment that is not a material carrying attachment such as a powered rake,then the front end is the heavy end.

6.Once the machine is horizontal on the truck or trailer,lower the loader arms all the way down.

7.Shut the machine down.See“SCL Shutdown Procedure"on page 16.

8.Secure the machine down to the truck or trailer using chains or straps at the machine's tie-down points.Adhere to all local laws and regulations for tie-down requirements.See Figure 4-4& Figure 4-5.

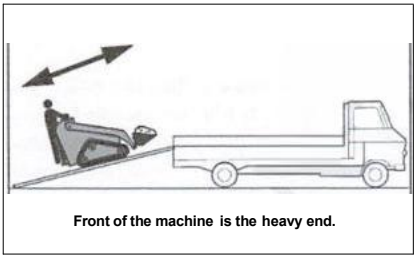


Figure 4-2
Load&Unload with Heavy Front End

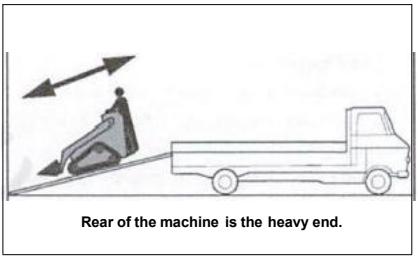


Figure 4-3
Load&Unload with Heavy Rear End

Figure 4-4
Front Tie-down Points

Unloading the Machine

Refer to Figure 4-2&Figure 4-3:

Use caution when unloading the machine onto a truck or trailer as the possibility of losing control or tipping is increased if done carelessly.

DANGER

To avoid serious injury or death:

- Use extreme caution when loading and unloading the machine on a ramp.
- Do not accelerate or decelerate suddenly while on the ramp as this will create a jerking motion that increases the possibility of tipping.
- Avoid turning on a ramp.If you must change direction,go back down the ramp and adjust on flat ground.

1.Lower the ramp to the ground.Make sure the ramp incline is not greater than 15 degrees from the ground.

2.Remove chains or straps used to secure the machine down to the truck or trailer.

3.Turn the machine on,raise the loader arms and attachment slightly so that they do not come into contact with the ramp.

4.Unload the machine with the heavy end up the ramp

- If the machine has no attachment hooked-up to it,the back end of the machine is the heavy end.

Section 4:Transporting

- If the machine has a material carrying attachment hooked-up to it such as a bucket or pallet fork,but with no load on it,the back end of the machine is the heavy end.
- If the machine has a material carrying attachment hooked-up to it such as a bucket or pallet fork,with a full load on it,the front end of the machine is the heavy end.
- If the machine has an attachment that is not a material carrying attachment such as a powered rake,the front end is the heavy end.

Figure 4-6 Front Lift Point

DANGER

To avoid serious injury or death:

- Do not lift the machine if it exceeds the maximum rated capacity of the hoist and attaching hardware
- See specifications for attaching hardware and choose hardware suitable for the weight,size and configuration of the machine.
- Assess the center of gravity of the machine Lift the machine so that it remains horizontal.
- Do not enter and do not allow others to enter the working area under the suspended machine.Do not move the suspended machine over people.
- Always inspect the attaching hardware(chains, hooks,straps and master links)before each use. Do not use any worn or damaged attaching hardware and do not use if the safety latch is missing.
- Do not use attaching hardware,including chains, hooks and master links,in extreme temperature or other environmental conditions that exceed the manufacturer's specifications.
- Machine disengagement can cause severe injury or death.The use of a hook with a safety latch or other master link device does not preclude inadvertent detachment of a slack sling load from the hook or master link.Visual verification of proper hook or shackle engagement is required in all instances
- Comply with all Federal,State and Local regulations and safety standards before lifting the machine.
- Make sure the lifting chains,lifting straps, hooks and master links are strong enough to withstand the load being lifted.
- Be sure that the hooks used have safely latches
- Before lifting,make sure attachments are properly attached to the machines quick hitch mount plate.

1.Secure chains or lifting straps,that are rated for the weight of the machine,to the lift point locations.

Section 4:Transporting

2.Attach the chains or straps to an overhead hoist.

3.Slowly lift the machine only as high as required and move the machine slowly to the desired location.

Moving Inoperable Machine

WARNING

To avoid serious injury or death:

- Pull the machine only from both rear tie-downs or from front D ring.
- Use a tow chain or tow rope and hardware that is rated at least 1.5 times the machine weight.

Section 5:Maintenance &Lubrication

Maintenance

Regular scheduled maintenance &lubrication is the best prevention for costly downtime and expensive,premature repair Correct problems as quickly as possible.The following pages contain suggested maintenance information and schedules to follow routinely.

Check initially and periodically for loose bolts and pins.Torque loose bolts per“Section 9:Torque Values Chart”on page 60.Visually inspect machine for abnormal wear or damage.Remain alert for unusual noises that could be signaling a problem.

Clear away heavy build-up of grease,oil and dirt, especially around engine and hydraulics.Minute dust particles are especially abrasive to these components.

Some repairs may require the assistance of a trained service mechanic and should not be attempted by unskilled personnel.Consult X1300 dealer when assistance is needed.

Maintenance Safety

DANGER

To avoid serious injury or death:

- Read and observe all safety warnings in this manual and in all service manuals pertaining to this machine.
- Maintenance procedures should be performed with the machine on a flat,level surface,with the loader arms on the ground and the machine turned off.Use all appropriate personal protective equipment.
- When it is required that the machine be elevated off the ground to perform maintenance,make certain the machine is being hoisted up by a capable hoist and straps.Make sure to use solid, non-concrete blocks or jack stands that are sturdy and are capable of bearing the machine's weight.Make sure the engine is shut off.
- When maintenance or servicing requires the loader arms to be raised,secure the arms in the raised position with the cylinder lock.
- DONOT leave engine running when servicing the machine.

WARNING

To avoid serious injury or death:

- Make sure controls are all in neutral position or park before starting the power machine.
- Always keep protective shields on for safety as well as for cleanliness,except when checking or changing components
- Keep your machine clean.Remove all deposits of grease,oil,dirt,mud and debris,especially from drives,muffler and engine.A dirty machine can cause engine fires and hydraulic overheating.
- Keep the machine properly maintained.Do not make unauthorized modifications. An improperly maintained machine or one that has been improperly modified can be dangerous to operate.
- Keep the machines parts and decals in good condition.
- Do not alter the machine or replace parts on the machine with other brands.Other brands may not fit properly or meet OEM(Original Equipment Manufacturer)specifications.They can weaken the integrity and impair the safety, function,performance,and life of the machine. Replace parts only with genuine OEM parts.
- Keep all hardware tightened.Check for loose hardware periodically.
- When a service or repair requires a technician. never allow untrained and/or unqualified personnel to service or repair the machine.
- Wear protective gloves and safety glasses or goggles when working with hydraulic systems. Hydraulic fluid under pressure can penetrate skin.Use a piece of cardboard or wood rather than hands when searching for hydraulic leaks. If hydraulic fluid is injected into the skin,it must be treated by a doctor within a few hours or gangrene may result

Section 5:Maintenance &Lubrication

- Check hydraulic hoses and fittings frequently for leaks or damage.Fluid escaping under pressure can penetrate skin.Large leaks can drop the loader arms.Either situation can cause serious injury or death.
- Allow the machine to cool down before storing it.Do not store the machine near flames.
- When charging the battery,unplug the charger before connecting or disconnecting it from the battery.Charge the battery in open and well ventilated areas.
- Wear all the proper personal protective equipment when handling the battery.Battery acid can cause burns to eyes and exposed skin.
- Keep sparks,flames and cigarettes away from the battery as battery gases can explode.
- Exercise great care and precaution when handling fuel,as it is flammable and its vapors are explosive.
- If an object is struck with the machine,check the machine over and make all necessary repairs before putting the machine back to use.

CAUTION

To avoid minor or moderate injury:

- Do not touch parts that are hot from operation. Allow machine to cool down before attempting to perform maintenance or service.

Maintenance Intervals

Proper lubrication and maintenance directly affect the trouble frequency and service life of the machine Periodically check and maintain your machine,and you will find that your machine will be in working order and ready to accomplish the tasks at hand in an economic and timely fashion.

Refer to the“Maintenance Intervals Table” chart.Adhere to this chart to ensure the longevity of the machine.If the machine is used in harder-than-usual working conditions it must be checked and maintained at shorter intervals than those listed in the chart.

Section 5:Maintenance &Lubrication

Maintenance Intervals Table

Check points	Mimosas	Hours											Intervals	Remarks	Page
		10	50	100	150	200	250	300	350	400	450	500			
Fuel level	Check	Dally											Dally		50
Water separator	Check	Dally											Dally		51
Hydraulic oil level	Check		0	○	o		0	0		0	0	0	10 hrs		52
Engine oil level	Check										0	0	10 hrs		52
Coolant level!	Check				o		0	o			0	0	10 hrs		53
Grease zerks	Grease					◎	0	□		0		°	10 hrs	Every 10 hrs and more frequent as needed	54
Air cleaner element	Check						0					0	50 hrs	Change as needed.	54
Track tension	Check						0						50 hrs	Adjust as needed	55
Fan bolt tension	Check							0				o	100 hrs	Check the fan belt EVERY TIME when replacing engine oil engine oil filter and adjust if necessary	56
Engine oil	Change		0	0		○				o		0	100 hrs	Change at 50 hrs then every 100 hrs after	56
Engine oil filter	Change					0						0	100 hrs	Change at 50 hrs then every 100 hrs after	58
Fan belt adjustment	Adjust												200 hrs	Adjust every 200 hrs as needed	59
Air cleaner element*	Change											d	250 hrs	Clean as needed.	60
Fuel filter	Change											o	250 hrs		61
Hydraulic return filter	Change												250hrs	Change at 50 hrs then every 250 hrs after	62
Hydraulic oil	Change												500 hrs		63
Hydraulic tank breather	Change	**Every year**											1 year		**64**
Coolant	Change	**Every 2 year**											2 years		**64**

*Clean and replace the air cleaner element more frequently if machine is being used in dusty conditions.If the air filter is extremely dirty due to dusty conditions,replace it.

Daily Checks/Every 10 Hours

For your own safety and to assure the long life of your machine,the following checks should be performed before each use of the machine and/or every 10 hours.

Checking&Adding Fuel

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

Use extreme caution when handling fuel as it is flammable and its vapors are explosive.Adhere to the following safety alerts and instructions when adding fuel to the machine.

Section 5:Maintenance &Lubrication

DANGER

To avoid serious injury or death:

- Replacement of fuel system parts(i.gas caps, hoses,fuel tank,fuel filter,etc.)must be the same as original parts.Fire and/or explosion can occur if not followed.
- Observe safe fuel handling precautions.Fuel is flammable and vapors are very explosive.An explosion or fire can burn,destroy and kill property,animals and people.
- Do not fill tank with engine running or while engine is hot.Allow engine to cool before filling. Fuel spilled over engine,muffler,or hot objects may result in a fire or explosion.
- Do not smoke while handling fuel or around the fuel tank.
- Keep fuel away from open flame or spark.
- Store the machine away from open flame and sparks.
- Refuel outdoors preferably,or in well ventilated areas.
- Never attempt to start the engine when there is a strong odor of fuel fumes present.Locate and correct the cause.
- Do not fill fuel containers inside of vehicle,on a truck,or on a trailer.Interior carpets and plastic truck bed liners insulate the container and slow loss of static charge.
- When practical,unload the machine from the truck or trailer and refuel the machine with its tracks on the ground.

If this is not possible,then refuel the machine on the truck or trailer using a portable container and not a fuel dispenser nozzle.If a fuel dispenser nozzle must be used,keep the nozzle in contact with the rim of the fuel tank or container opening at all times until fueling is complete.

- Fuel is a poison that is harmful or fatal if swallowed.

WARNING

To avoid serious injury or death:

- Allow engine to cool before servicing the fuel system.
- Do not fill fuel tank to the top.Fuel will expand in hot weather and seep out through the fuel tank vent system.
- Screw the fuel cap on tight immediately after filling the fuel tank.Never operate the machine without a fuel cap.
- Clean up any fuel spills immediately.
- Avoid prolonged breathing of fuel vapors. Long-term exposure to fuel vapors can cause serious injury and illness.
- Keep face away from nozzle and fuel tank opening.
- Keep fuel away from eyes and skin.

IMPORTANT:

Never buy more than a 30 day supply of fuel. Store fuel in an approved container out of children's reach.

IMPORTANT:

Use diesel fuel only Using other fuels such as gasoline will damage the machine's engine.

IMPORTANT:

Be aware of the fuel level in the fuel tank so that the machine will not run empty.The machine's fuel system or engine can be damaged.

IMPORTANT:

To prevent condensation (water) accumulations in the fuel tank,fill the fuel tank full before parking overnight.

IMPORTANT:

For optimal machine performance,when temperatures are above-5℃(+23F),use No.2-D diesel fuel.When temperatures are under · 5℃(+23 °F),use No.1-D diesel fuel.

IMPORTANT:

The minimum cetane rating for the appropriate diesel fuel should be at least 40

IMPORTANT:
Do not pour fuel into hydraulic tank.

Refer to Figure 5-1:

1.Inspect the fuel gauge on the monitor and refill fuel as necessary.

2.Open the machine's hood

3.Remove fuel cap(#1)and add fuel.Ensure the fuel nozzle stays in constant contact with the edge of the fuel tank during the refilling process

4.Tighten fuel cap(#1)until it is securely fastened.

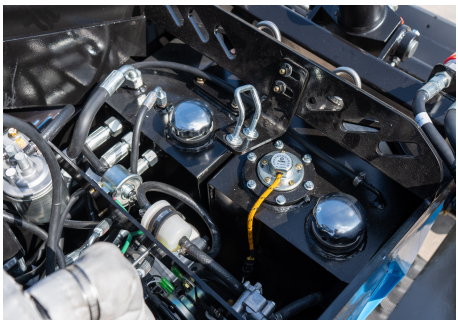


Figure 5-1 Fuel Cap

Check the Water Separator

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

When the separated water is entering the sediment cup,the red float in the cup moves upward.If the float is at or above the white "drain water"line on the cup,follow the steps below for dumping the water out.

Refer to Figure 5-2:

1.Open the machine's hood.

2.Close the shut-off valve(#1)on the water separator assembly to prevent fuel from leaking out.(The shut-off valve is shown in the closed position when turned from#4 to#1 in Figure 5-2).

3.Loosen the sediment cup collar(#2)to detach the sediment cup(#3)from the water separator assembly.

4.Dispose of the water collected in the sediment bowl(#3).

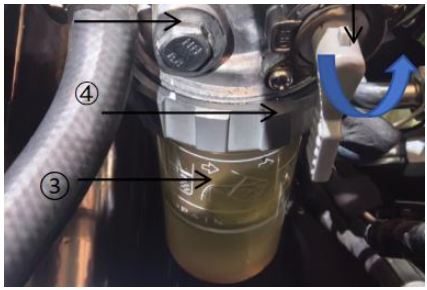


Figure 5-2 Water Separator Check

IMPORTANT:

Be careful when dumping the water from the cup, not to lose the float and spring that is inside the cup.

5.Reattach the sediment cup(#3)to the water separator assembly by screwing it back together with the sediment cup collar(#2)Hand tighten only

6.Rotate the shutoff valve(#1)back to its original position marked(#4)

IMPORTANT:

In reattaching the sediment cup,be careful to keep dust and dirt away from the inside of the sediment cup.

Section 5:Maintenance &Lubrication

Check Hydraulic Oil Level

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance

Refer to Figure 5-3:

1.Open the machine's hood.

2.If the oil level is too low,unlock the hydraulic oil cap(#1)by first removing any dust and debris from the hydraulic oil tank and the hydraulic oil tank cap(#1).

4.Remove the hydraulic oil tank cap and add hydraulic oil up to the full mark of the oil level sight.For the protection of the hydraulic system,it is essential to use only the recommended hydraulic oil. See "Recommended Fluids"on page 51.

5.Tighten the hydraulic oil tank cap(#2)by hand.

6.Allow the machine to idle for 1 minute before operating any hydraulic components to ensure the hydraulic oil is filtered before reaching any contamination-sensitive areas.

IMPORTANT:

Always use the correct hydraulic oil.Using the wrong hydraulic oil can result in damage to the hydraulic system.

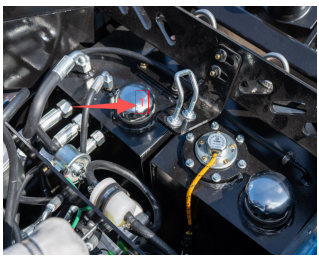


Figure 5-3 Hydraulic Oil Level Check

Check Engine Oil Level

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate persona protective equipment when performing maintenance.

Refer to Figure 5-4&Figure 5-5

Section 5:Maintenance &Lubrication

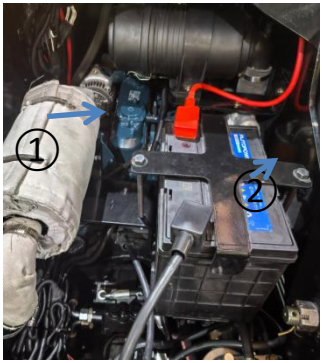


Figure 5-4 Oil Cap

Figure 5-5 Dipstick

IMPORTANT:

Keep oil level between holes(A&B).To avoid damage to the machine,do not over fill or operate with low oil.Use the correct engine oil with the correct viscosity for outside supersaturate"Recommended Fluids"on page 51.

Check Coolant Level

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance

Refer to Figure 5-6:

NOTE: For better accuracy,allow for the machine to cool down sufficiently if it has been in operation.

1.Check to see that the coolant level is between the “FULL”and “LOW”marks of recovery tank(#1).

2.If coolant needs to be added to recovery tank (#1),open up the control panel.Remove recovery tank lid(#2).Use a clean funnel f necessary.

NOTE:

Coolant may evaporate over a long period of time.However,f coolant level goes down significantly in a short period of time,it is likely because of one of the following:

- **Improper refill** in which bubbles that are not bled out initially have worked their way up to the recovery tank and coolant has sufficiently resupplied the radiator to fill the voids.
- **Leaks** should be identified and fixed immediately.
- **Overheating** in which the coolant has expanded enough to fill the recovery tank and even overflow out of the overflow hose. When everything cools down,the coolant level in the recovery tank draws back down, possibly below the "low"line on the recovery

  tank.In this case the overheating problem needs to be fixed immediately

- When the coolant level decreases due to evaporation,add coolant only up to the full level.
- In case of a leak,refill with coolant until reaching the full level.

IMPORTANT:

Do not over fill the recovery tank.Fill only to the "FULL"line on the tank.

IMPORTANT:

Do not fill the recovery tank with dirty or salty water.

3.Replace recovery tank lid(#2)

Section 5:Maintenance &Lubrication

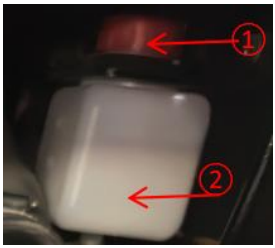


Figure 5-6 Coolant Level Fill

Check Grease Points

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Refer to "Lubrication Points"on page 52.

In general,the machine should be greased daily. It is also good practice to grease the machine immediately after it has been washed and at the end of the day if it has been exposed to water while operating.

1.Locate the machine's grease zerks and wipe them clean with a rag.See "**Lubrication Points**" on page 52 for grease zerk locations.

> IMPORTANT:
> Replace missing or damaged grease zerks immediately.

2.One by one,with a grease gun,pump grease into the grease zerks until you see excess grease ooze out(Typically 3-4 pumps).

3.Wipe away excess grease with a rag

Every 50Hours

For your own safety and to assure the long life of your machine,the following checks should be performed every 50 hours.

Check Air Cleaner Element

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

> IMPORTANT:
> If the machine is used in dusty conditions for several hours, checking the air cleaner element should be done more frequently.

Refer to **Figure 5-7&Figure 5-8:**

1.Open the machine's hood.

2.Place a container below evacuate valve(#2) then pinch evaluator valve(#2)so that the slit opens up to empty any dust into the container. Discard the dust.

3.Release latches(A&B)on air cleaner cover(#1) and remove air cleaner cover(#1).

4.Clean the inside of air cleaner cover(#1)with compressed air.

5.Clean the evaluator valve(#2)by pinching it together so that the slit opens up then blow compressed air through it from the back.

> IMPORTANT:
> - Do not clean the inside of the air cleaner body with compressed air
> - Do not remove the inner element filter to clean the air cleaner body.

6.Remove outer element filter(#3)and clean inside of the air cleaner body with a damp paper towel or rag.

7.Check outer element filter(#3).If it needs cleaned,blow compressed air through it from the inside of the filter as shown in **Figure 5-9.**

8.Reinstall outer element filter(#3)in the air cleaner body.Press it in firmly.

9.Fasten the air cleaner cover(#1)to the air cleaner body as shown in **Figure 5-7** with the evaluator valve(#2)pointing down.

10.Check the air cleaner body and cover(#1)for any damage that may cause air leaks and replace any damaged components immediately.

IMPORTANT:

Do not operate the machine with a damaged air cleaner system.If any part of the air cleaner body or cover s cracked or damaged,replace the damaged parts before operating the machine.Never operate machine without its filters

Figure 5-7 Air Cleaner

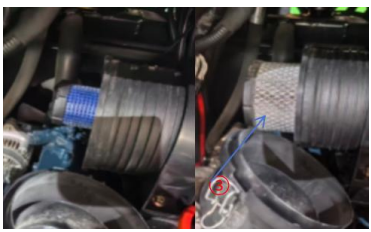


Figure 5-8 Filter Elements

Filter Elements Figure 5-9

NOTE:

The inner element filter must be inserted in the direction shown in **Figure 5-10.** If it is inserted in the opposite direction,the loader may start emitting white smoke.

Figure 5-10

IMPORTANT:

When the green indicator light on the air cleaner indicator turns red, it is imperative to replace the air filter element promptly, otherwise it may cause damage to the machine. The indicator is merely a reference;the actual timing for replacing the air filter element should still be determined based on usage duration and working conditions. **Refer to figure 5-11**

Section 5:Maintenance &Lubrication

Check Track Tension

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off Use all the appropriate personal protective equipment when performing maintenance.

To check the track tension you will need a flat bar or a level and a tape measure.The proper sag in the track should measure 1/4”from the top of the track to the bottom of the flat bar or level.

Refer to **Figure 5-12:**

1.Lay a flat bar or a level on the track.

2.Measure the of sag in the middle of the track with a tape measure.

If the sag is more than 1/4”then the track needs to be adjusted tighter.

Refer to Figure 5-13:

a.Wipe the grease nipple clean with a cloth.

b.Use a grease gun to inject grease into the grease nipple until the track sag reaches 1/4 inch.

If the sag is less than 1/4”then the track needs to be adjusted looser:

Refer to Figure 5-13:

a.Wipe the grease nipple clean with a cloth.

b.To relieve pressure on the track,use an M22 wrench to turn bolt A counterclockwise;grease will seep out until the track sag reaches 1/4 inch.

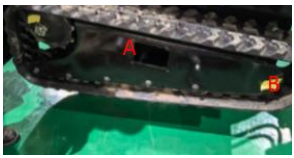
The steps for replacing the track:

a.Using an M22 wrench,turn bolt A counterclockwise;this will cause grease to seep out

b.Push the guide wheel B towards the rear of the loader,allowing most of the grease inside to seep out through the grease nipple,thus releasing all internal pressure.

c.At this point,the new track can be easily installed.

Figure 5-12 Track Sag Measurement



Track Tension Adjustment Figure 5-13

NOTE:

A straw or small hose can be placed over the grease zerk to redirect grease and limit the mess.

WARNING

To avoid serious injury or death:

Track adjuster grease s under high pressure.Be cautious not to remove the grease zerk completely, as the pressure could shoot the zerk out at a high velocity.

Section 5:Maintenance &Lubrication

Every 100 Hours

For your own safety and to assure the long life of your machine,the following maintenance should be performed every 100 hours.

> **NOTE:**
>
> Fan belt tension should be checked and tightened,if needed,when changing the oil filter as it will be easier while the filter access cover is off.

Check Fan Belt Tension

WARNING

To avoid serious injury or death:

Track adjuster grease is under high pressure.Be cautious not to remove the grease zerk completely, as the pressure could shoot the zerk out at a high velocity.

Refer to Figure 5-14:

3.If the measurement is out of the service specifications,loosen the top alternator mounting bolt(#3)and adjust the fan belt tension.

> **NOTE:**
>
> - Pivoting the alternator closer to engine will loosen the fan belt tension.
> - Pivoting the alternator away from the engine will tighten the fan belt tension.

4.Tighten the top alternator mounting bolt(#3)to the alternator after adjusting the fan belt tension.

Service Specification	
Deflection	7.0 to 9.0mm 0.28 to 0.35 in. Under load of 9B Nm or 22 Ib)

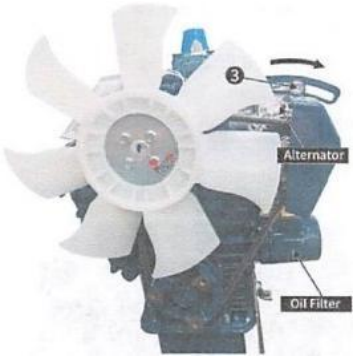


Figure 5-14Fan Belt Tensioning

Change the Engine Oil

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

Refer to Figure 5-18

1.Drive the loader onto a platform with space below it,use a wrench to remove the housing from the bottom of the engine,which will expose the bottom of the engine,then loosen the drain plug.

2.Place an oil pan,or something similar, underneath the machine to catch the oil that will be drained. **Refer to Figure 5-16**

3.Open oil drain valve to drain the oil by turning the handle counter clockwise.

4.Once the oil is fully drained,close old drain valve.

5.Replace the oil filter before proceeding.See "Change the Oil Filter"on page 42.

IMPORTANT:
Change oil filter with each oil change.

6.Open the machine's hood.

7.Wipe away dirt and dust from around oil fill cap (#3)

8.Remove the oil fill cap(#3).

9.With a clean funnel pour new oil, approximately 3/4 of the specified capacity,into the oil reservoir.See "Fluid Capacities"on page 51

Figure 5-16 Baseboard

Engine Oil Level Check Figure 5-17

Figure 5-18 Oil Cap

IMPORTANT: Use recommended oil only. See"Recommended Fluids"on page 51.

10.Check the oil level with dipstick(#2)

11.Replace dipstick(#2)and continue to add oil slowly until the oil level is to upper hole(A) in the dipstick. **See Figure 5-17**.Replace oil cap(#1).

IMPORTANT: Do not overfill with oi over the engine's capacity of 4QT(3.8L).

12.Turn the machine on for a few minutes to allow the oil to flow through the system and into the new oil filter.

13.Check the oil level again and add oil as needed.

14.Properly dispose of used waste

Change the Oil Filter

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

With the oil drained from the engine,following the" **Change the Engine Oil"** procedure on page 41 proceed with the following steps to change the oil filter.

1.Retrieve the specialized wrench for the engine oil filter from the toolbox. **Refer to Figure 5-19.**

2.Remove oil filter with the oil filter wrench and make sure that its O-ring comes off with it.

IMPORTANT:

Failure to remove the old O-ring can result in an improper seal with the new oil filter.

3.Add a little oil to the O-ring on new oil filter#1 for lubrication when tightening. See Figure 5-21.

4.Fasten new oil filter#1 by hand or by using the oil filter wrench.

IMPORTANT:

To avoid stripping threads, do not over tighten the oil filter. It is best to hand tighten.

Figure 5-19 Oil Filter Wrench

Figure 5-20 Engine

Figure 5-21 Oil Filter

Every 200 Hours

For your own safety and to assure the long life of your machine,the following maintenance should be performed every 200 hours.

Fan Belt Adjustment

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate persona protective equipment when performing maintenance.

NOTE:

Fan belt tension should be checked and tightened,if needed,when changing the oil filter as it will be easier while the filter access cover is off.

Refer to Figure 5-14:

1.With a tension checker,apply force to the fan belt between the fan drive pulley and the alternator pulley.

2.Measure the deflection.

Refer to Figure 5-15:

3.If the measurement is out of the service specifications, loosen the top alternator mounting bolt(#3)and adjust the fan belt tension.

Section 5:Maintenance &Lubrication

NOTE:

- Pivoting the alternator closer to engine will loosen the fan belt tension.
- Pivoting the alternator away from the engine will tighten the fan belt tension.

4.Tighten the top alternator mounting bolt(#3)to the alternator after adjusting the fan belt tension.

Figure 5-23 Fan Belt Tensioning

Every 250 Hours

For your own safety and to assure the long life of your machine,the following maintenance should be performed every 250 hours.

Change Air Cleaner Element

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate persona protective equipment when performing maintenance.

IMPORTANT:

If the machine is used in dusty conditions for several hours,Changing the air cleaner element should be done more frequently.

Refer to Figure 5-24&Figure 5-25:

1.Open the machine's hood.

2.Release latches(A&B)on air cleaner cover (#1)

3.Remove the air cleaner cover(#1).

4.Remove outer element filter(#3)

5.Clean the inside of air cleaner cover(#1)with compressed air.

6.Clean the inside of air cleaner body(#5)with a damp paper towel or rag.

IMPORTANT:

Do not clean the inside of the air cleaner body with compressed air.

IMPORTANT:

If the inner element filter does not need cleaned or replaced,do not remove it.

7.Check inner element filter(#4).If it needs cleaned or replaced,gently pull it out of air cleaner body(#5).If inner element filter(#4) only needs cleaned,blow compressed air through it from the inside of the filter as shown in **Figure 5-26.**

8.Re-install or replace inner element filter(#4)in air cleaner body(#5).

IMPORTANT:

Make sure that the open end of the inner element filter is inserted into the back of the air cleaner.If the inner element filter is installed backwards,it will cause poor performance and engine damage.

9.Replace outer element filter(#3)in air cleaner body(#5).

10.Fasten the air cleaner cover(#1)to air cleaner body(#5)with evaluator valve(#2)pointing down as shown in Figure 5-24.

Figure 5-24 Cover Removal

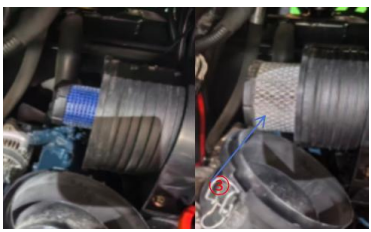


Figure 5-25 Filter Elements

Figure 5-26 Inner Element Filter Cleaning

Change the Fuel Filter

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

A primary fuel coarse filter element is positioned at the fuel tank's outlet,ensuring the fuel remains clean;typically,this filter does not need to be replaced. **Refer to Figure 5-27**

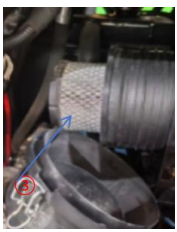


Figure 5-27 Fuel Coarse Filter Element

Section 5:Maintenance &Lubrication

Diesel fuel fine filter element:

1.Open the machine's hood.

2.Remove fuel filter(#1)by hand or with a filter wrench.

3.Fill new fuel filter(#2)with clean fuel and apply some fuel to the gasket for lubrication.

4.Attach new fuel filter(#2)and hand tighten it.

5.Purge the fuel system with the following steps:

a.Using a wrench or socket with a ratchet, loosen the fuel bleed screw on the engine.

b.Turn on the engine.The fuel pump runs for 30 seconds

c.Tighten the bleed screw when fuel reaches the bleed screw and no bubbles are present. If the fuel pump stops and fuel has not yet reached the bleed screw,press the start button but do not hold it down to restart the fuel pump.

d.Start the engine and let it run until it sounds smooth.

IMPORTANT:

Do not loosen the bleed screw on the water separator as this will introduce air into the fuel lines. This can damage the fuel pump if it is running.

IMPORTANT:

Failing to purge the fuel system can leave air in the fuel lines and cause damage to the machine.

Figure 5-28 Fuel Filter Location

Figure 5-28 Fuel Filter Location

Change Hydraulic Return Filter

WARNING

To avoid serious injury or death:

The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off. Use all the appropriate personal protective equipment when performing maintenance.

Refer to Figure 5-30&Figure 5-31:

1.Open the machine's hood.

2.Remove hydraulic oil filter(#1)by hand or with a filter wrench.

3.Fill new hydraulic oil filter(#2)with clean hydraulic oil and apply some oil to the gasket for lubrication.

4.Attach new hydraulic oil filter(#2)and hand tighten it.

5.Turn machine on and let it idle for a few minutes, then shut the machine back down.

Refer to Figure 5-32:

6.Check the oil level through the oil level sight glass(#3)to ensure there is sufficient oil.The oil level should be at or near the full mark on the oil level sight glass(#3).

7.Add hydraulic oil to hydraulic oil tank(#4)as needed.See“ **Check Hydraulic Oil Level”** on page 36 for further detailed instructions on adding hydraulic oil.

IMPORTANT:

Always refill with the correct hydraulic oil.See **"Recommended Fluids"**on page 51.Using the wrong hydraulic oil can result in damage to the hydraulic system.

IMPORTANT:

Wipe away all sand,dirt or dust from the oil port before adding hydraulic oil.

Change Hydraulic Suction Filter

The hydraulic oil suction filter element should be replaced for the first time after **50 hours** of operation,and thereafter every 5**00 hours** of operation.

Figure 5-30 Hydraulic Oil Filter Location

Figure 5-31 New Hydraulic Oil Filter Installation

Section 5:Maintenance &Lubrication

Every 500 Hours

For your own safety and to assure the long life of your machine,the following maintenance should be performed every 500 hours.

Change the Hydraulic Oil

DANGER

To avoid serious injury or death:

When it is required that the machine be elevated off the ground to perform maintenance,make certain the machine is being hoisted up by a capable hoist and straps.Make sure to use solid,non-concrete blocks or jack stands that are sturdy and are capable of bearing the machine's weight.Make sure the engine is shut off.

Refer to Figure 5-32 and Figure 5-33

1.Locate the M6 hex wrench in the tool kit and use it to remove the bolt from the hydraulic oil drain port,then drain the used hydraulic oil as shown in Figure 5-33.

2.Open the machine's hood.

3.Loosen the hydraulic oil tank cap(#4)by hand in a counter-clockwise direction,and clean any dust and debris off the hydraulic oil tank and the hydraulic oil tank cap(#4).

4.Remove the hydraulic oil tank cap(#4)and add hydraulic oil to the tank until the oil level reaches the full mark on the oil level sight glass (#3).It is critically important for the protection of the hydraulic system to use only the recommended hydraulic oil.Details of the recommended fluids can be found on page 51 under "Recommended Fluids."

5.Screw the oil tank cap(#4)back on clockwise to secure it.

6.Start the machine and let it idle for one minute. This allows the hydraulic oil to pass through the filtration system before any hydraulics are operated, preventing contaminants from entering sensitive areas.

7.Operate the hydraulic controls for five minutes, then shut the machine down again.

8.Check the oil level.The oil level should be at or near the full mark on the oil level sight glass (#3).If necessary,repeat steps 2 through 6 to top up the hydraulic oil as needed.

9.Dispose of the old hydraulic oil properly.

Every 2 Years

For your own safety and to assure the long life of your machine,the following maintenance should be performed every 2 years.

Change the Coolant

WARNING

To avoid serious injury or death:

- The following procedure should be performed with the machine on a flat,level surface,the loader arms completely lowered and the machine turned off.Use all the and the machine turned off.Use all the appropriate personal protective equipment when performing maintenance.

- Allow the radiator to cool down before removing the radiator cap.

Refer to Figure 5-34&Figure 5-35:

1.Turn the coolant tap(#2)counterclockwise by a quarter turn by hand as shown in Figure 5-34,to drain out the old coolant that needs to be replaced.The drained coolant must be disposed of properly

2.Press down on the radiator cap(#1)with your hand and then turn it counterclockwise to open it

3.Drain the coolant into an appropriate container, such as a specialized oil drain pan or a regular bucket.

4.Remove the recovery tank lid(#6)from the recovery tank(#7).

5.Fill the radiator with coolant and then to pup the recovery tank(#7)to the full mark.Use a clean funnel if necessary to assist with the filling.

IMPORTANT:
Use 50/50 mix coolant only.

6.Screw the radiator cap(#3)back onto the radiator securely.

7.Snap the recovery tank lid(#6)back onto the recovery tank(#7).

8.Start the machine and let it run for a few minutes at normal operating temperature.

9.Check the coolant level in the recovery tank(#7) to ensure it is still at the full mark.Top up the coolant if the level has dropped.

Figure 5-34 Radiator

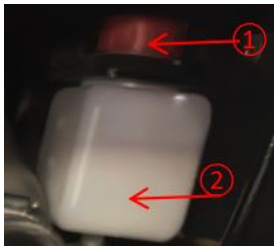


Figure 5-35 Recovery Tank

Long-Term Storage

Clean,inspect,service,and make necessary repairs to the machine when storing it for long periods and when storing it at the end of a working season.This will help ensure that the machine is ready for field use the next time you need it.

WARNING

To avoid serious injury or death:

Do not clean the machine with the engine running as you may accidentally bump the controls.

IMPORTANT:
If you wash the machine while the engine is running, water can splash into the air cleaner intake and cause engine damage.

1.Clean the whole machine thoroughly.Remove all built up grease and compacted dirt that may have accumulated on the machine and its moving parts

2.Inspect the machine for parts that are out of adjustment,loose,damaged or worn.

- Make required adjustments.
- Tighten all loose hardware.
- Replace damaged and worn parts and decals as needed.Contact X1300 dealer for ordering replacement parts and decals

Section 5:Maintenance &Lubrication

3.Replace all damaged or missing decals.

4Perform an oil change on the machine.See "Change the Engine Oil"on page 41.

5.Check the air cleaner element.See "Check Air Cleaner Element"on page 38.Change it f necessary.

6.If it is expected that temperatures will fall below freezing,add anti-freeze or drain coolant completely.Refer to "Change the Coolant"on page 48 for draining the radiator.

7.Grease and lubricate the machine.See "Lubrication Points"on page 52.

8.Heavily grease exposed hydraulic cylinder rods to minimize oxidation.

9.Check track tension and adjust if needed.See "Check Track Tension"on page 40.

10.Store the machine on a level surface in a clean, dry place.

IMPORTANT:

Storing the machine indoors is ideal as it will reduce maintenance and make for longer life of the machine.If the machine can not be stored indoors,make sure to keep the machine covered with tarps.

11.Store the machine on a level surface in a clean, dry place.

12. Remove the battery and store it indoors.

IMPORTANT:

When operating the machine after it has been in storage for a long time, wipe off the grease from the hydraulic cylinder rods. Turn on the engine and operate the hydraulics and the drive mechanisms under no load in order to circulate the hydraulic oil.

If the machine is stored for longer than one month, follow these procedures once every month.

Periodic Replacement of Important Parts

To ensure safety in operation,you are strongly requested to inspect and service the machine at regular intervals.For added safety,ask X1300 dealer to replace the following important component parts.

- Fuel hose
- Hydraulic hose
- Radiator hose

These parts are prone to degradation in material or subject to wear and tear with time.It is difficult to judge how much they have been affected at regular inspection.It is therefore necessary to replace them with new ones,whether wear is visible or not after 2 years or 4000 hours.

Fuel&Hydraulic Hose Inspection

Inspection interval	Check Points
Dally chock	Check for leaks at tunnel and hydraulic hose connections and points.
Every month	Check for tanks at fuel and hydraulic hose connections and points. Check for damage on the fuel and hydraulic hoses (cracks, chafing).
Evory yoar	check lo i oaks at fuel and hydraulic hos collections and points. Chock for controller. deformation, gradation. wist and other damage (cracks, chafing) of it and hydraulic hoses.

IMPORTANT:

To prevent serious damage to the hydraulic system,use only X1300 genuine hydraulic hose.

For replacement parts,contact X1300 dealer.

Section 5:Maintenance &Lubrication

Fluid Capacities

Lubricant	Component	Capacity	Remarks
Engine oil	Engine	40T 38L)	
Coolant	Radiator without recovery tank	10.6QT(10L)	
	Radiator with recovery tank	114QT(10.7L)	
Hydraulic oil	AI hydraulic system	8U.S.Gal	
	Hydraulic oil tank	5.8USGal	
Fuel	Fuel tank	66US.GeI(25L)	

Recommended Fluids

LubrleanUFual	Rocommendatton			Filed at factory	
	Ambition Temperature conditions	Viscosity	Quality standard	Brand	Type
Engine oil	Above 77F (25℃)	SAE 10W-30 SAE 10W-40 SAE 15W-40	API classficatlons: CF.CF-4.CG4 CH-4	Rote a	T4 SAE 10W30 APICK4,CJ4
	14 to 77F (101o 25° C)	SAE 10W-30 SAE 10W-40 SAE 15W-40			
	under 14F(-10° ℃)	SAE 10W30 SAE 10W-40			
Grease		ISO200	•	She'Gadus	S2 V22000
Hydraulic oil	Kubota Super UDT^2			Kusch	Super UDT2
Coolant	•	•	•	•	Anutreoz050/50 conventions groer
Fuel	Above 14° F/-10° ℃)	•	ASTM D975 No 2-D Alternate:No2-D S15	•	
	under 14F(-10° ℃)	•	ASTM D975 No.1-D Alternate:No.1-DS15	•	•

5

Section 5:Maintenance &Lubrication

Engine oil and fuel grade

NOTE:

Engine oil

- Oil used in the engine should have an American Petroleum Institute(API)service classification and should be a proper SAE engine oil according to the ambient temperature of the machine's environment.
- Perform the initial engine oil replacement 50 hours after first use of the machine.

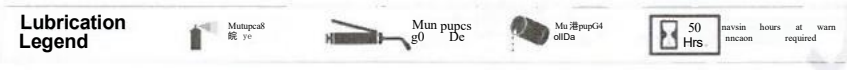
Grease

- Perform the initial grease replacement 50 hours after first use of the machine.

Fuel

- A Cetane number of 45 is a minimum standard.A Cetane number of 50 or greater is preferred, especially for temperatures below-20° ℃(-4° F)or elevations above 1,500m(5,000 f).
- Diesel fuels conforming with ASTM D975 is recommended.
- Ultra low sulfur fuel is mandatory,when machine is operated in US EPA regulated areas.
- No.2-D is a distillate fuel with lower volatility for engines in industrial and heavy mobile service (SAE)J313JUN87).

Lubrication Points



	10 Hours

Grease Zerks

12-Zerks (Left and right side of the machine)
Type of Lubrication:Multi-Purpose Grease
Quantity:Add grease until grease begins to emerge.

These grease zerks are located on right side as well

Section 5:Maintenance &Lubrication

Troubleshooting Electrical Wiring Issues

Refer to Figure 5-36-Figure 5-38:

When the loader experiences electrical problems, such as malfunctioning gauges,a dead dashboard, or non-functioning headlights,the first thing to check is if the fuse inside the fuse box has blown. If the fuse has burned out,you can replace it with a spare fuse located at the second position counting from the left.The function of the fuse is to protect our wiring from damage.If all fuses in the fuse box are intact,then you need to inspect the entire wiring for any issues such as loose connections or damage.

Figure 5-36 Fuse Box

Figure 5-37 Fuse

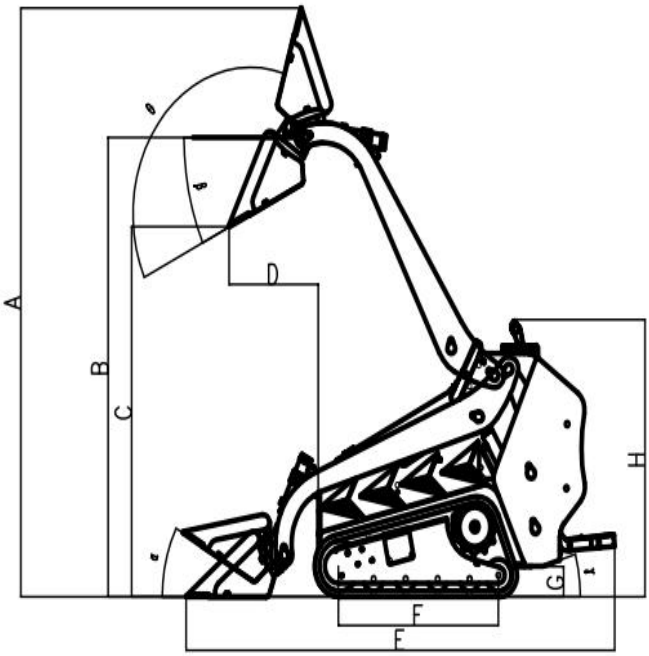
Figure 5-38 Fuse Distribution Diagram

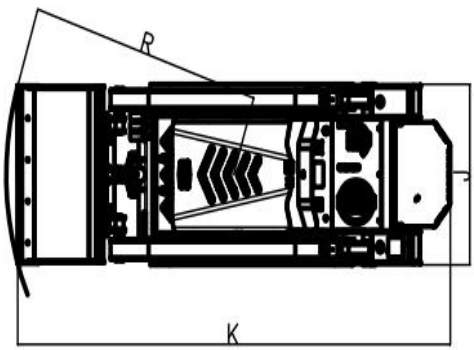
X1300 Design Data		
project	track	
	Metric (mm)	Imperial (in)
Maximum working height (A)	2940	115.748
Maximum pin height (B)	2230	87.8
Maximum unloading height (C)	1850	72.8
Discharge distance at the highest point (D)	500	19.7
Bucket swing angle (θ)	130°	130°
Bucket tipping angle (β)	30°	30°
Collection bucket angle (α)	32°	32°
Angle of elevation (γ)	17°	17°
Total height (H)	1380	54.3
Ground clearance (G)	150	5.9
Wheelbase (F)	1000	39.4
Length (excluding bucket)	2200	86.6
Total width (J)	900	35.4
Bucket width	880	34.6
Overall length (K) (with bucket)	2670	105.1

Performance parameters		
Radius of rotation (R)	1420 mm	55.9
workload	400 kg	881LB
Bucket capacity	0.2 m^3	7ft^3
Maximum lifting force	500 kg	1100LB
speed	0-3.5 km/h	0-2.2 mi/h
Hydraulics	21MPa	21MPa

Standard configuration		
name	Configuration	parameter
engine	Running Engine	Kubota 1105
	Rated power/speed	18.5kw/3000rpm
	Engine oil capacity	3.2L
	Fuel tank capacity	19L
	Types of fuel	diesel fuel
Hydraulics	Hydraulic oil tank capacity	19L
	Types of hydraulic oil	46# Anti-wear Hydraulic Oil
valve	valve	pilot valve
pump	pump	Closed-loop pump

Section 6:Specification &Capacities





Section 7:Features &Benefits

1300

Features Benefits	
Narrow 35.4″Overall Width	
7.87″wide track standard	The machine's narrow overall width enables it to access areas that a full size machine cannot access such as zero clearance yards and inside of commercial buildings. The low impact wide track design(4.0 psi) minimizes damage to lawns and landscaping while maintaining outstanding traction force.
Low 4.0psi ground pressure	
Outstanding traction force	
Integrated Track Design	
Robust undercarriage welded to main frame	A robust undercarriage and sturdy mainframe make for excellent durability. The welded track frame has an angled top for debris shedding and the dual flange front idler provides better stability and weight distribution. Maintenance time is reduced with permanently sealed and lubricated track rollers. The grease type track tension system makes tensioning the tracks quicker and easier.
Grease track tension design	
Sealed oil bath roller	
The Configuration Of Core Components	
24.8HP Kubota engine	Core components are sourced from renowned international manufacturer hydraulic system utilizes a closed system by Italian Hansa, coupled with a pilot control joystick, enabling one-handed control of the machine's movements and precise operation of the boom and bucket while on the move.
Italy Bondioli & Pavesi TMP main pump	
Italy hydro control valve	
Use Impro motor	
Other notable features	
Its boom features a vertical lift design, with the pin height of the bucket reaching up to 2350mm(compared to industry counterparts at just 2100mm), enabling loading onto high-sided trucks.	
The boom comes standard with a float function, ensuring that when using sweeping attachments it can follow the contours of the ground.	
The operator's position is equipped with foam cushioning for added comfort. The undercarriage has a ground clearance of 185millineters. The engine hood is fitted with gas spring supports.	

Section 8:Troubleshooting

Troubleshooting Chart

Problem Cause Countermeasure		
Engine		
Engine start difficulties	Fuel is too viscous	Check fuel tank &filter. • Remove impulses &water. If necessary,replace filter.
	Aur or water in the fuel system	Remove water from the fuel tank. • Check fuel pipe jaint bolts and nuts for looseness. • Purge the fuel system
	Fuse is blown out	Check the fuse and replace it wit a same-capacity one as required.
	Battery dead or almost dead	Recharge or replace battery.
Insufficient engine power	Low fuel level	Check fuel and add f necessary.
	Clogged air cleaner	Clean the air cleaner element.
Engine suddenly stops	Low fuel level	Check fuel and add i necessary. Purge the fuel system.
Abnormal exhaust smoke color	Poor fuel	Use high quality fuel.
	Too much engine oi	Drain engine oil to specified oil level.
Water temp.in red zone (overheating)	Loose or worn lan belt	Adjust or replace the belt.
	Thermostat defective	Replace the thermostat.
	Coolant level too low	Fill to specified level.
	Radial grid or fins are clogged	Clean the radiator gill and fins.
	Coolant s contaminated	• Replace coolant fluid and add anti- rust.
	Defective radiator cap(evaporation)	Replace the radiator cap.
	Continuous operation under full load	• Reduce load.
	Engine oil level too low	fill to specified level.
	Use of poor fuel	use specialized fuel.
Hydraulic system		
Low or no power in Lift arms, attachment and/or drive ing.	Hydraulic oil level to low	Add oil.
	Hydraulic oil leak in noses hoses and joints	Replace hose or joint. Tighten connection to correct torque.
	Operator is off of the operator platform	• Operate from the operator platform.
Drive system		
Deviation of drive direction	Blocked with debris	Remove debris.
	Track too loose or too tight	Adjust track tension accordingly.

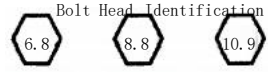
Section 9:Torque Values Chart

Torque Values Chart for Common Bolt Sizes

Bolt Head defalcation

Bolt Size (Inches)	Grade 2		Grade 5		Grade 8	
In-tpl	N •m	f-lb	N •m	f-lb	N •m	ft+b
14″-20	74	5.6	11	8_	16	12
1/4” -28	8.5	6	3	1C	18	14
5M8″ •18_	15	1.	24	17	33	25..
5/18° -24	17	13	26	9	37	27
38” -16	27	20	42	31	59	44
38° •24	31	22	47	35	67	49
716″ •14	43	32	67	49	95	70
7M8″-20	49	38	75	55	105	78
1/2″-13	66	49	105	76	145	105
1/2″-20	75	55	115	85	185	120
9/16″ •12	95	70	150	110	210	155
9/16″ •18	105	79	165	120	235	170
5N8″-11	130	97	205	150	285	210
5/8” -18	150	110	230	t70	325	240
3/4” -10	235	170	360	265	510	375
3/4″-16	260	190	405	295	570	420
7/8 “-9	225	165	585	430	820	605
78 “-14	250	185	640	475	905	670
-8	340	250	875	645	1230	910
1-12	370	275	955	705	1350	995
1-1/8 •7	480	355	1080	795	1750	290
1-18″ •12	540	395	1210	890	1960	1440
1-14* •7	680	500	1520	1120	2460	1820
1-1/4# •12	750		1680	1240	2730	2010
1-3/B″ •6	e90		1990	1470	3230	2380
1-3/8 “ •12	1010	745	2270	1670	3680	2710
11/2″ •6	1180	670	2640	1950	4290	3160
11/2″ •12	1330	980	2970	2190	4820	3560

Bolt Head Identification



bolt Size (Metric)	Class 5.8		Class 8.8		Class 10.9	
max pitch	N •m	f-b	N •m	ft-b	N •m	ft-b
M6×0.8	4	3	6	.5	9	7
M6X1	7	5	11	8	15	11
M8X1.25	7	12	26	19	36	27
M8×1	IA	3	28	21	39	29
M10X1.6	33	24	52	39	72	53
M10×0.76	39	29	61	45	85	e2
M12X1.75	58	42	91	67	125	93
M12X1.6	60	44	95	70	130	97
M12X1	90	66	05	77	145	105
M14X2	92	68	45	105	200	150
M14X15	99	73	155	115	215	160
M16X2	145	105	225	185	315	230
M16X1.6	155	115	240	180	335	245
M18X2.5	195	145	310	230	405	300
M18X1.6	220	165	350	260	485	355
M20X2.5	280	205	440	325	610	450
M20×1.5	310	230	650	i480	900	665
M24×3	480	355	760	560	1050	780
M24X2	525	390	83C	610	1150	845
M30X3.5	980	703	1510	1120	2100	1550
M30X2	t060	78E	16E0	1240	2320	1710
M38X3.6	1730	1270	2850	1950	3680	2700
M38X2	1880	1360	29E0	2190	4100	3220

Pin4pi=nominal thread diameter in inches-threads per inch

² Am=newtonmetars

3r-lb=foot paurds

mm×pitch =nominal tread diameter n millimeters

tread thread pitch

Torque tolerance+0%.15° c of torquing values.Unitas otherwise specified use torque instated above . .

Al Iocknuts or lubricated fasten:Use 75;of torque value.fi.8.1:213 GR5-7e ft-b:75%of 76 or.75x76=57 h-Lb)