Tirth Agro Technology Pvt Ltd

Self-Propelled Tree Maintenance Platform Related Information

Name: -_____

Add: -_____

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We Are Happy To Present 'Training Handbook – Self-Propelled Tree Maintenance Platform' Of Tirth Agro Technology Pvt. Ltd. (Shaktiman).

We Have Tried To Give More All The Relevant Information Like What Is Platform? How Do You Run In The Field, Specifications, Cleaning, Repair, Assembly And Troubleshooting Etc.

We Hope You Find This 'Training Handbook - Self-Propelled Tree Maintenance Platform ' Very Useful.

Manufacturer,

Tirth Agro Technology Private Limited

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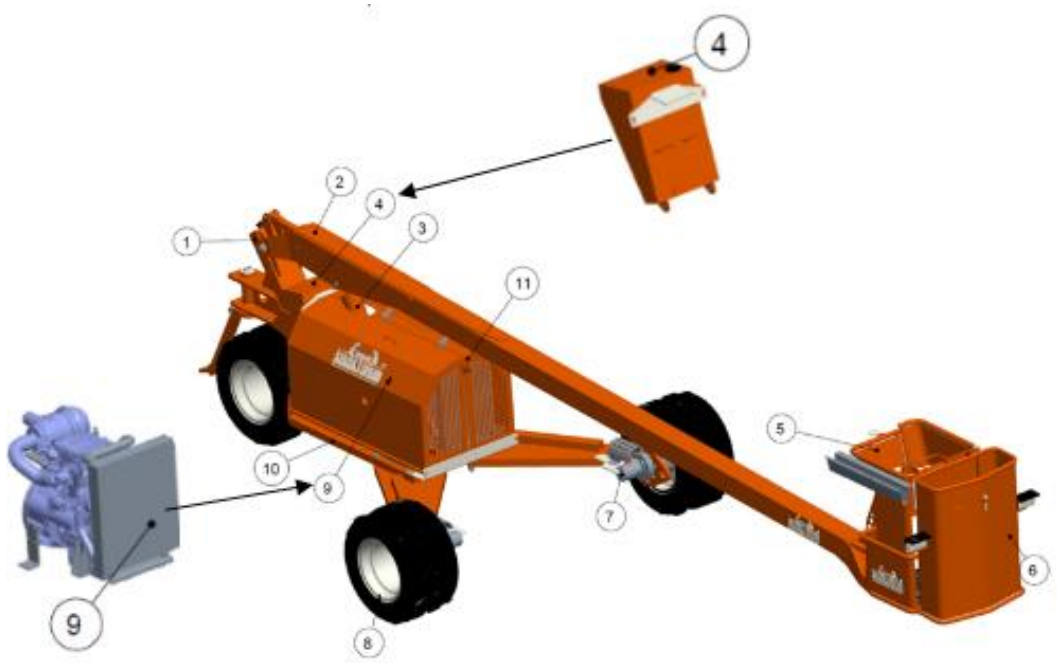
1. Introduction

1.1 Uses Of Self-Propelled Tree Maintenance Platform

Shaktiman Has Developed India's First Self-Propelled Tree Maintenance Platform with Varied and Multiple Applications Across Different Sectors. It Provides Fast and Direct Top Access to A Tree or Any Higher Object. With Storage Buckets and Power Operated Tools It Is Much More Productive Than Traditional Climbing. It Is Highly Reliable and Comes in Handy in Applications Ranging from Harvesting, Tree Pruning, Tree Canopy Maintenance, Washing, Painting, Cleaning, Industrial/Civil/Electrical Maintenance and Street-Light Servicing.

1.2 Parts Introduction



1	Hydraulic Tank
	Hydraulic Oil Has Been Filled.
2	Boom
	To Lift And Climb For Support.
3	Hydraulic Cylinder
	To Lift A Boom.
4	Fuel Tank
	To Fill A Diesel
5	Operator Cabin
	Operator Work Place To Operate A Machine
6	Bucket
	To Fill A Material (I.E. Fruit) In It.
7	Wheel Drive
	A Drive Wheel Is A Wheel Of A Motor Vehicle That Transmits Force, Transforming Torque Into Tractive Force From The Tires To The Road, Causing The Vehicle To Move.

8	Tyre And Rim
	For Proper Traction.
9	Engine
	To Run A Machine.
10	Chassis
	To Keep An Engine On It.
11	Door
	To Protect An Engine.

1.3 Technical Specification

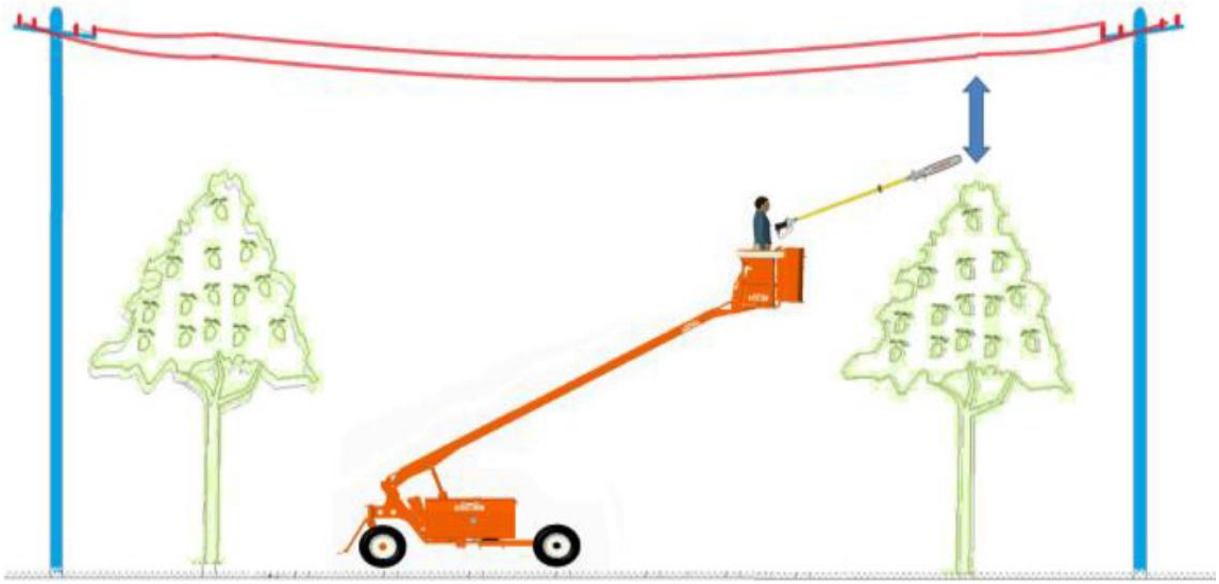
Self-Propelled Tree Maintenance Platform

Model	STMP 20 Ultra	STMP 26 Ultra
Overall Length (Mm)	6300	8000
Overall Width (Mm)	2650	
Overall Height (Mm)	5000	6706
Working Height (Mm)	6300	8000
Machine Weight (Kg/Lbs)	1960/4321	
Platform Size (Mm)	510 × 510 × 950	
Platform Load (Kg/Lbs)	145 / 320	145 / 320
Platform Capacity	1 Person (Total 150 Kg / 330 Lbs Including Operator Weight)	
Max. Hydraulic System Pressure	150 Bar / 2176 Psi	
Max. Hydraulic System Flow	27 L / 6 Imp. Gal	
Fuel Tank Capacity	16 L / 3.5 Imp. Gal	
Hydraulic Oil Tank Capacity	20 L / 4.4 Imp. Gal	
Engine	22 Hp Water Cooled Diesel Engine	
Engine Make	Kubota	Lombardini India Pvt. Ltd.
Engine Model	D902	Kdw 1003 (3 Cyld.)
Max. Ground Slope	5^0	
Min. / Max. Speed	2.5 Kmph Or 1.5 Mph	2 / 4 Kmph Or 1.24 / 2.5 Mph
Tyre Size	31 × 15.5 × 15, 8 Pr	
Drive Wheel Pressure	0.9 Bar / 13 Psi	
Caster Wheel Pressure	1.5 Bar / 22 Psi	

2. Machine Preparation

2.1 Operating Instruction

- Before Attempting to Use the Machine in Any Area, Make Sure You Are Aware of All Condition and Obstructions That May Be Present in Area to Be Worked. This Includes All Power Lines, Telephone Lines, Utility Pole, Overhead Sprinklers and Other Items of Possible Contact.
- Special Attention Must Be Given to The Ground Condition and Slopes.
- Operation of This Machine On a Slope Over 5 Degree, Can Result in Serious Injury or Death.
- Make Sure All Wheels Are Filled with Liquid Ballast 75% For Added Stability.
- General Regulation Limits Operation Within 5mt/15ft of Up to 600 Volt Lines and for Higher Than 600 Volts Contact Your Local Power Provider Before Performing Work in That Work Zone. It Is the Owner Responsibility to Learn and Follow Other Local Regulation Regarding Non Insulated Platform Operation Near Electrical While Power Lines.
- The Platforms Must Be Lowered Before You Travel On Rough Ground or Steep Terrain.
- Lower The Platform to Reduce Risk of Overturning While Manoeuvring.
- When Tower Is Raised, Always Move the Equipment at Idling Speed.
- This Platform Is to Be Used Only as Personnel Lift Unit, And Should Never Be Used as A Crane or for Raising/ Moving Other Objects.
- Remove All Loose Items from The Platform While Operating.
- You Must Stand Only On the Platform Floor Inside the Railing When Performing Your Work Activity.
- Operating Voltage of Overhead Power Line Between Conductors Safe Limit of Approach Distance for Persons and Equipment



Voltage Limit	Minimum Distance
0-750v	0.30m(12")
Above 750v	1.00m(40")
0 - 40 Kv	3.00m(9'10")
69 Kv- 72 Kv	3.50m(11'6")
138 Kv- 144 Kv	4.00m(13')
230 Kv- 240 Kv	5.00m(16'5")
500 Kv	7.00m(23')

- Operator Must Use Approved Body Belt, Safety Helmet, Goggles, Hearing Protection or Other Safety Equipment as Required by The Type of Activity Being Performed. With The Safety Strap Attached.
- Remove Main Battery Switch When Machine Is Not in Use to Prevent Unauthorised People from Operating It.
- This Machine Is Not Suitable for Highway Towing.
- A Body Belt Must Be Worn.
- Stop The Engine and Relieve Pressure Before Connecting or Disconnecting Hydraulic Quick Couplers.
- Tower Descending Speed Should Not Exceed 0.5 Met/Sec [1-1/2 Ft/Sec].
- Any Changes or Alterations to This Machine Can Result in Serious Injury or Death Since Any Change Can Drastically Affect the Stability at All Times.
- Make Sure All Protective Covers Are Fixed in Place at All Times.
- The Engine Cooling System Operates Under Pressure Which Is Controlled by The Radiator Cap. It Is Dangerous to Remove the Cap While the System Is Hot. Always Turn Cap Slowly to The First Stop and Allow the Pressure to Escape Before Removing the Cap Entirely.
- Never Remove the Fuel Cap or Refuel with Engine Running or Hot.
- Maintain Control of the Fuel Filler Pipe Nozzle When Filling the Tank.
- When Adding Fuel to Machine Always Allows Some Room for Expansion in Order To Prevent Dangerous Overflow.
- Wipe Out Spilled Fuel Immediately.
- Always Tighten Fuel Tank Cap Securely.
- Keep Hands, Feet and Clothing from Power Driven Parts

2.2 Inspection and Check Out Before Operation

- Look at The Ground Where the Machine Was Parked, To See If There Are Any Drops of Oil, Fuel or Coolant Water.
- Remove Any Leaves or Debris from The Machine, And Inspect All of the Machine Components.
- Look Under the Engine Hood and Clean Away Any Leaves.

- See If There Are Any Oil, Fuel, Coolant Water "Wet" Spots.
- Make Sure All Under Hood Electric Wires and Hydraulic Hoses Are Secure and in Place.
- Inspect Rear Part of Machine, Caster Wheel Assembly, Caster Wheel Tire, Hydraulic Hoses Where Exposed.
- Visually Check Drive Wheels and Tires, Wheel Lugs, Drive Gear Mounting, Hydraulic Drive Motor Hoses.
- Check Engine Oil Level.
- Check Engine Coolant Water Level.
- Check Diesel Fuel Level.
- Switch On Battery Master Switch.
- Push Heat Button (Diesel Cold Start) On Platform Panel for 3-5 Seconds.
- Push Start Button On Platform Panel Until Engine Starts.
- Allow Engine to Warm Up for Few Minutes.
- Check Engine Shut-Off Button Operation from Platform and Chassis Control Panel.
- Check Engine Speed Throttle Control.
- Check Drive Control Operation Forward and Reverse.
- Check Tower Control Operation Up and Down Using Platform Control Lever.
- Check Tower Control Operation Up and Down Using Platform Foot Pedal.
- Check Tower Control Operation Up and Down Using Lower Control Lever.
- Lift Tower to Max. Height Shut Down Engine and Lowers the Tower By Using The Emergency Lowering Valve.

2.3 Working Position:

- Standing On the Platform Facing the Control Levers Is the Working Position. We Refer to Forward, Reverse, Left and Right from This Position.
- A New Operator Should First Practice in Open Area, On Level Ground and Keep Tower at Minimum Height.
- Before Operating Your Shaktiman Tree Maintenance, Ask Spectators to Clear the Work Zone.
- Drive Control
- Put One Hand On Both Drive Control Levers, Slowly Push or Pull Levers, Shaktiman Tree Maintenance Will Start Moving Slowly in The Same Direction.
- In Order to Increase Drive Speed Push or Pull Drive Levers to Full Stroke.
- An Additional Speed Increase Can Be Achieved by Speeding Up the Engine Using the Engine Speed Control Pedal.
- Before Reaching Your Final Destination Release the Speed Control Pedal First. Once Engine Speed Drops, Slowly Bring Control Levers to Neutral Position for A Complete Stop, Or Change Drive Direction If Needed.
- Change Drive Direction While Engine Is at High Speed Will Cause Reaction
- That Can Lead to:
- Dynamic Load That Will Affect Unit Stability.
- Accumulated Damage to The Machine Structure and Components.
- Harm to The Operator.
- A New Operator Should First Practice Control in All Directions at Idling Speed. Once The Operator Feels the Machine Reaction He/She Can Start Practice Combining Engine Speed Control Including Lifting and Lowering Tower.

2.4 Tower Control:

- Lifting or Lowering Tower Can Be Done from:
- Hand Control at Platform.
- Foot Control at Platform.
- Hand Control at Machine Chassis.
- Start and Stop Tower Control Only at Engine Idling Speed.
- The Tower Lowering Speed Is Not Affected by The Engine Speed; Increasing Engine Speed Will Not Speed Up Tower Descending Speed.
- Avoid Raising or Lowering the Tower While Driving.
- Maximum Descending Speed Should Not Exceed 0.5met/Sec [1-1/2 Ft/Sec].
- The Tower Max. Descending Speed Is Controlled by an Adjustable Valve. This Valve Is a Safety Device and Should Not Be Tampered With Unless You Are Qualified To Do So

2.5 Tower Lift Cylinder Agriculture Model

- Agriculture Platforms: Tower Lift Cylinder Is Equipped with A Special Valve to Control Tower Descending Speed in Case of House or Valve Failure. This Arrangement Will Allow a Single Operator in Field to Lower Tower in Case of Engine Shut Down.

2.6 Emergency Lowering

- In Case of Emergency Situation Additional Valve Is Provided Near Engine to Lower Down the Tower Safely. This Valve Can Be Operated by Person Standing Near the Engine.

2.7 Hydraulic Oil Outlets

- Hydraulic Quick Couplers to Operate Power Tools Are Located at The Platform.
- Only "Open Centre" Tools Should Be Used.
- Maximum Pressure – 150 [Bar]
- Oil Flow...5 G.P.M. (30l/M) -At Max. Engine R.P.M. (3000 R.P.M)
- 2 G.P.M. (15l/M) -At Idle Engine R.P.M. (1100 R.P.M)
- Male Coupler –Pressure Hose.
- Female Coupler- Returns Hose.
- Couplers Must Be Coupled Together or to Power Tool Before Starting Engine.
- Unplug Couplers Only When Engine Is Shut Off.
- Make Sure Couplers Are Clean Before Engaging.
- Put Caps On Coupler Plugs When Disconnected to Avoid Dust & Mud Deposit.

2.8 Towing/Transport Instructions

- The Shaktiman Tree Maintenance Is Equipped with A Freewheeling Towing Assembly and A Tow Bar. You May Tow Your Shaktiman Tree Maintenance a Short Distance with The Following Limitation:
- Towing Vehicle Must Be Suitable.
- Towing Speed Must Not Exceed 10km/H On a Good Road. On A Rough Reduce Towing Speed.

- The Shaktiman Tree Maintenance Is Not Recommended for Highway Towing.
- It Is the Owner's Responsibility to Learn and Follow Any Specific Local Regulation.

2.9 Prepare Your Shaktiman Tree Maintenance for Towing

- Park Your Shaktiman Tree Maintenance and The Towing Vehicle On Level Ground.
- Hook Tow Bar to Towing Vehicle.
- Release Wheel Engagement On Each Drive Wheel.
- While Engine Is Running Actuate Drive Control Levers to Make Sure Disengagement Is Fully Completed.
- Use Safety Chain and Proper Signs as Required by Federal and Local Regulations.

2.10 Prepare Your Shaktiman Tree Maintenance for Service After Towing

- Park Your Shaktiman Tree Maintenance and The Towing Vehicle On Level Ground.
- Re-Engage Drive Wheels.
- Start Your Shaktiman Tree Maintenance and Push Drive Control Levers to Make Sure Engagement Took Place.
- Unhook Tow Bar.

Warning:

- If Tow Bar Is Unhooked Before Drive Wheels Are Engaged Your Shaktiman Tree Maintenance Might Roll Away, Since Wheels in This Position Are Freewheeling.

2.11 Transport Your Shaktiman Tree Maintenance

- It Is Recommended to Keep Drive Wheels Engaged While Transporting the Machine On Truck. Tie Down Machine Frame and Platform to Prevent Its Bouncing Around While Transporting Unit.

3 Safety and Service Adjustment

3.1 Service-Safety Instruction

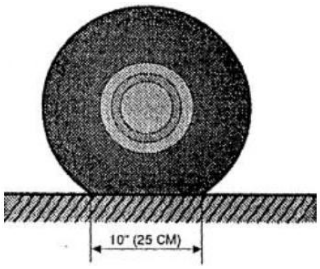
- The Engine Must Be Shut-Down Before Servicing the Unit.
- Before Servicing Any Hydraulic Line Release All Pressure from The Hydraulic System.
- Before Servicing Tower Lift Cylinder Make Sure Machine Not Running.
- If Any of the Tower Lift Components Need Service, The First Tower Operation Must Be Done from The Lower Lift Control Station.
- Never Stand Under a Hanging Part That Is Supported by A Hydraulic Cylinder
- Never Work Under Machine Frame Without Properly Supporting the Machine.
- All Safety Devices Must Be in Place and Functional-Overriding Any Safety Device Can Cause Serious Injury or Death.
- Alteration or Change to This Machine or Its Components Will Affect Stability and Can Cause Serious Injury or Death.
- Make Sure That All Protective Covers Are in Place and Secure After Servicing the Unit.
- Setting or Adjustment Should Be Carried Out Only by A Certified Mechanic.
- Take Special Care When Servicing the Battery.
- Take Special Care When Servicing the Engine Cooling System
- Take Special Care When Servicing Tires/Rims
- Machine Wheels Are Heavy. Handle with Care and Ensure When Stored That They Cannot Topple and Cause Injury.
- Keep Hands, Feet and Clothing from Power Driven Parts.
- Under No Circumstances Should Gasoline, Alcohol or Blended Fuels Be Added to Diesel Fuel. This Combination Can Create an Increased Fire or Explosive Hazard. In A Closed Container Such as A Fuel Tank These Blends Are More Explosive Than Pure Gasoline. Do Not Use These Blends.
- Never Use Fuel for Cleaning Purposes.
- Use Original Parts Only.

3.2 Wheel Air Pressure

- The Tires On Your Shaktiman Tree Maintenance Are Flotation Type. For Best Contact with Ground, Good Traction and Soft Ride the Correct Tire Pressure Is Highly Important.

3.3 Drive Wheel Air Pressure - Visual Inspection

- Place Machine On a Level Hard Surface.
- Load Platform to Normal Operating Load.
- Tires Should Have Full Width and About 10" (250mm) In Length Ground Contact.



3.4 Caster Wheel Air [Pressure Should Be 1.5[Bar] 22 [P.S.I]

Wheel Liquid Ballast

- All Machine Wheels Must Be Filled with Liquid Ballast for Added Stability.
- Fill Wheels 75% Of Their Volume.
- When Filling a Tire with Liquid Ballast Adjust the Tire So the Valve Should Be at The Highest Point On the Wheel.
- When Checking or Adjusting Tire with Liquid Ballast Air Pressure the Valve Should Be at The Lowest Point.
- In Freezing Conditions Fill with Solution to Avoid Water Freezing.
- Drive Wheel Air Pressure Should Be 0.9[Bar] 12 [Psi]

3.5 Tower Descending Speed Adjustment

- During Operation Tower Descending Speed Is Controlled by The Tower Control Lever. The Maximum Descending Speed Is Limited by A Control Valve Mounted On the Hydraulic Cylinder Inlet Port.
- This Control Valve Is a Safety Device That Ensures Maximum Permissible Descending Speed in The Unlikely Event of Hydraulic Valve / Hose Failure.
- Since This Adjustment Can Affect Machine Safety It Should Be Carried Out Only by an Authorized and Trained Mechanic.

3.6 Adjustment Procedure

- Run The Shaktiman Tree Maintenance Until Hydraulic Oil Temperature Reaches, Working Temp. Reach Working Temp (65-75 C).
- Lift Tower to 3-4 Meter Height.
- Bring Lift Control Lever Full Stroke Direction Down and Measure Descending Speed.
- Descending Speed Should Not Exceed 0.5met/Sec [1-1/2 Ft/Sec]
- (Approx. 16 Second from Top to Ground)

Noted

- The Red Painted Groove (C) On The Adjustment Screw Marks the Maximum Allowed Unscrewed Position of the Adjustment Screw.
- If The Red Groove Appears You Have Unscrewed the Adjustment Bolt Too Far Out and There Is Danger of Not Enough Thread Engaged.
- If Adjustment Screw Is Pulled Out, Tower Will Drop to Its Lower Position.
- In Case There Is a Need to Fully Pull Out the Adjustment Screw, Make Sure Tower Is All the Way Down.

4. Lubrication and Maintenance

4.1 Service Intervals

- Machinery Service Interval Is Usually Measured by Hours of Operation. Since The Shaktiman Tree Maintenance Is Usually Operated Under Various Conditions, We Recommend to Consider the Below Service Intervals as A Minimum Guideline.

For Example: Engine Air Filter Should Be Cleaned More Frequently If Unit Is Operating in Dusty Area.

4.2 New Shaktiman Tree Maintenance Running-In Period:

- Before First Operation Special Attention Should Be Given to:
- Main Structure, Tower, Levelling Arm, Caster Wheel Etc. Bolts/Pins for Tightness.
- Wheel Lugs Tightness-During First Days of Operation or After Re-Installing a Wheel It Is the Operator's Responsibility to Re-Check Tightness Until Torque Stabilizes.
- Re-Check After First Operating Hour.
- Re-Check Every 4 Hours Until Torque Is Stabilized.
- Any Oil, Fuel or Coolant Water "Wet" Spots.
- Check Hydraulic Hoses to Make Sure They Do Not Rub Against Sharp Corners.
- Any Unusual Operation Sound.

4.3 Weekly

- Clean Your Shaktiman Tree Maintenance and Visually Inspect It for Any Signs of Damage.
- Check Hydraulic Oil Level.
- Grease/Oil The Following Points:(As Shown in Annexure I & Ii)
- Levelling Arm X 2
- Tower Hydraulic Cylinder X 2
- Tow Bar X 1.
- Platform Door X 1.
- Arm X 2.
- Platform Door Lock Mechanism.
- Slightly Oil Tower Lift and Speed Control Foot Pedals.
- Check Wheel Lugs for Tightness
- Check Tires for Correct Air Pressure, Make Sure Hydraulic Hoses Are Properly Installed.
- Visually Check for Any Oil Fuel or Coolant Water Leaks.
- Visually Check Tower and Levelling Arm Connecting Bolts.

4.4 Monthly

- Perform A Weekly Service.
- Check Planetary Drive Gear Oil Level.
- Check Tower, Levelling Arm, Drive Wheels, Caster Wheel, Lift Cylinder, Etc, Main Bolts and Pins for Tightness.
- Check Safety Decals Appearance.

4.5 Yearly/End of Season

- Wash Machine Thoroughly.
- Perform A Monthly Service.
- Visually Inspect Tower Arm for Any Sign of Damage or Cracks.
- Visually Inspect Levelling Arm for Any Sign of Damage or Cracks.
- Disassemble Front and Rear Tower Arm Connecting Bolts, inspect for Any Sign of Wear, Replace If Needed.
- Disassemble Front and Rear Levelling Arm Connecting Bolts, inspect for Any Sign of Wear, Replace If Needed.
- Disassembly Upper and Lower Lift Cylinder Pins, inspect for Any Sign of Wear, Replace If Needed.
- Pressure Test Hydraulic Lift Cylinder.
- Fully Disassembly Caster Wheel Assembly and Inspect:
- Vertical and Horizontal Shafts for Any Sign of Damage Including Welding Areas.
- Bearings Condition - Replace If Needed.
- Wash the Assemble and Change Grease.
- Disassemble Tow Bar, Inspect Pin for Any Sign of Wear.
- Disassemble Drive and Caster Wheels, Inspect Rim Ring and Centre Plate for Any Sign of Damage.
- Disassemble Tires from Drive and Caster Rims; Inspect Internally and Externally Tire and Rims Condition.
- Test Hydraulic Oil Sample (Laboratory Test)-Replace If Needed.
- Change Hydraulic Oil Return Filter Element.
- Change Hydraulic Oil Suction Filter Element.
- Disassemble Hydraulic Pump from Engine Housing-Check Pump Coupling Condition.
- Check Hydraulic System Max. Working Pressure
- Inspect Machine Structure/Metal Components for Any Sign of Rust, Clean and Re-Paint Where Needed.

4.6 Every 3 Years - Safety Service

- Perform A Yearly/End of Season Service.
- Replace Front and Rear Tower Arm Connecting Bolts.
- Replace Front and Rear Levelling Arm Connecting Bolts.
- Replace Upper and Lower Lift Cylinder Connecting Pins.
- Fully Disassemble and Inspect Hydraulic Lift Cylinder Replace All Seals.
- Replace Caster Wheel Bearings.
- Fully Disassemble and Inspect Planetary Drive Gears Replace Gear Bearings.

4.7 Machine Life Span

- It Is Obvious That Inspection or Servicing These Units Must Be More Detailed Than for Relatively New Machines.
- In Order to Make Sure That Older Machines Are Still Safe for Operation After a Long Period Special Inspections Should Be Carried Out.

- Every 3000 Hours (Or 3 Years) The Machine Must Be Fully Overhauled and Tested in Order to Maintain the Safe Operation of the Machine Which Is Earlier.
- The Customer Should Contact the Nearest Dealer or Manufacturer for 3000 Hours Service Instructions.
- These Instructions Will Be Separately Supplied by The Manufacturer and Will Include All Relevant Information Accumulated During the Years.
- We Trust That This Investment Will Contribute to Trouble-Free, Safe Operation, Will Reduce Operating Costs, And Will Retain Machine Value.

4.8 Maintenance Schedule

Sr No	Activities	Weekly	Monthly	Yearly
1	Check Hydraulic Oil Level	√	-	-
2	Check Wheel Lugs For Tightness & Tires For Correct Air Pressure	√	-	-
3	Make Sure Hydraulic Hoses Are Properly Installed	√	-	-
4	Visually Check For Any Oil Fuel Or Coolant Water Leaks & Tower And Leveling Arm Connecting Bolts	√	-	-
5	Check Planetary Drive Gear Oil Level & Tower, Leveling Arm, Drive Wheels, Caster Wheel, Lift Cylinder, Etc, Main Bolts And Pins For Tightness	-	√	-
6	Wash Machine Thoroughly	-		√
7	Disassemble Front And Rear Tower Arm Connecting Bolts, Inspect For Any Sign Of Wear, Replace If Needed	-		√
8	Disassemble Front And Rear Leveling Arm Connecting Bolts, Inspect For Any Sign Of Wear, Replace If Needed	-		√
9	Disassembly Upper And Lower Lift Cylinder Pins, Inspect For Any Sign Of Wear, Replace If Needed	-	-	√
10	Pressure Test Hydraulic Lift Cylinder	-	-	√
11	Disassemble Tow Bar, Inspect Pin For Any Sign Of Wear	-	-	√
12	Disassemble Drive And Caster Wheels, Inspect Rim Ring And Centre Plate For Any Sign Of Damage			√
13	Disassemble Tires From Drive And Caster Rims; Inspect Internally And Externally Tire And Rims Condition			√

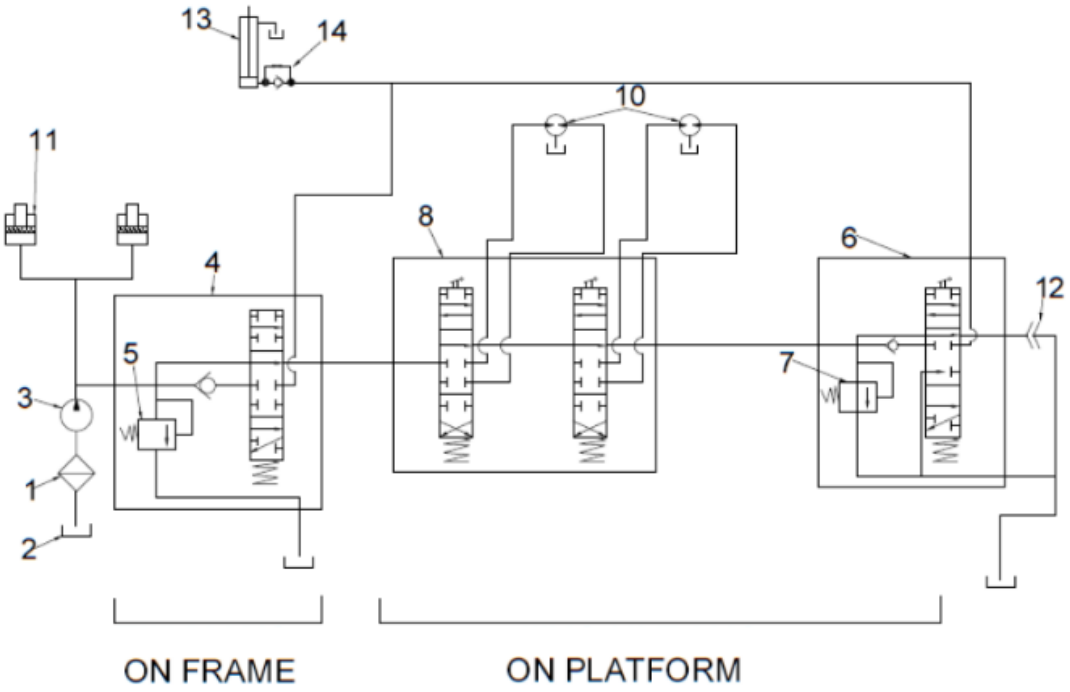
4.9 Storage & Maintenance

- **End of Season Shaktiman Tree Maintenance Storage Recommendation**
- Service Your Shaktiman Tree Maintenance - Yearly Service.
- Service Diesel Engine According to The Engine Service Manual.
- Park Machine Under Cover or Cover It with Canvas.
- Disassemble Battery and Store in Cooler Surroundings.
- Cover Engine Air Intake and Exhaust to Prevent Humidity or Dust from Getting In.
- Drain The Fuel Tank and Rinse It Thoroughly with Fuel. Block Up the Wheels or Pump the Tires Up to The Maximum Allowed Pressure.
- Leave Picking Bag Sleeve Open So That It Can Dry Out.
- Cover All Hydraulic Adopters with Plug.
- Fill Fuel Tank with Clean Fuel.

Getting Your Shaktiman Tree Maintenance Ready for Service After Storage:

- Lower Tire Air Pressure to The Recommended Pressure.
- Re-Install Battery, Making Sure Terminals Are Tight and Clean.
- Remove Covers from Air, Cleaners, And Muffler.
- Drain A Few Litters of Oil from Hydraulic Oil Tank to Remove Water Settled Under the Tank.
- Perform an Inspection and Check Out Before Operation.

5. Diagrams
5.1 Hydraulic System

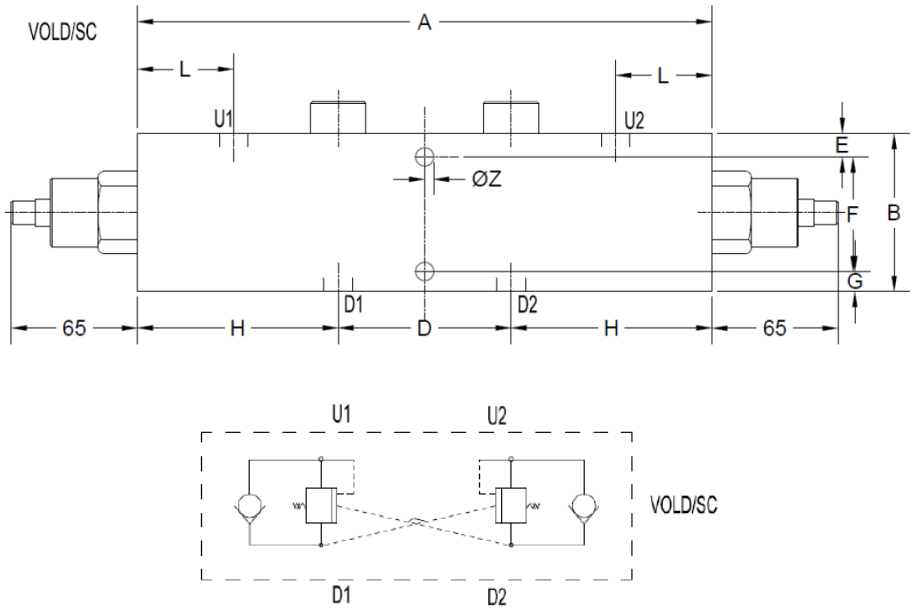


- Hydraulic Gear Type Pump (3) Sucks Oil from The Hydraulic Tank (2) Through A Suction Filter (1) Oil Flow from The Pump to The Lower Lift Control Valve (4) From The Outlet Port of the Lower Lift Control Valve Oil Flows to The Double Lever Drive Control Valve (8) Mounted at The Operator Platform.
- From The Double Lever Drive Control Valve (8) Oil Flows to The Upper Lift Control Valve (6) Mounted at The Operator Platform.
- The Oil from The Outlet Port of the Upper Lift Control Valve Flows Back to The Oil Tank Through a Quick Couplers (12) (Use to Operate Hydraulic Power Tools).
- The System Is Protected by 2 Relief Valves Located at The Following Locations:
- **Relief Valve (5) At The Inlet Port of the Lower Lift Control Valve (4) Set to 2200 [Psi]**
- **Relief Valve (7) At The Inlet Port of the Upper Lift Control Valve (6) Set to 2000[Psi]**

1) Drive System Fail Safe Brake:

- The Platform Drive System Is Equipped with A Failsafe Brake Unit Mounted On Each Drive Wheel Gear Assembly
- The Brake Unit Will Lock the Platform as Long as No Driving Command Is Given by The Operator
- Once The Operators Push/Pull The Drive Levers a Hydraulic Pressure Signal Will Release the Brake Unit Allowing the Drive Wheels to Rotate.

5.2 Counter Balance Valve: -



Description:

- Counter Balancing Valve Has Been Fitted in The Hydraulic Circuit to Overcome/Reduce Noise in Planetary Gear Box and Jerk While Lifting or Lowering the Platform.