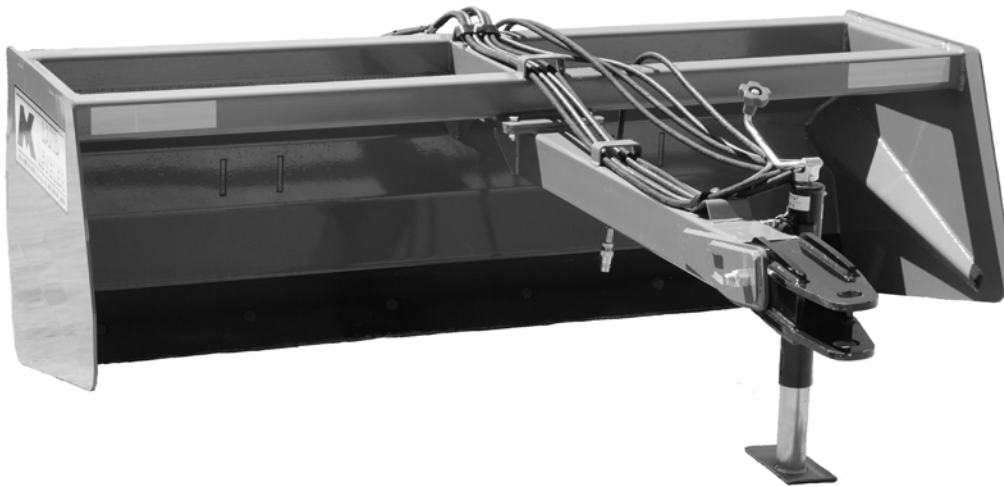


LAND LEVELER

**Compact Land Leveler
Operators and parts Manual
Standard & Tilt Models 5-6-7 ft
Electric Hydraulic Power Pac**



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Warranty and Limitation Of Liability

All equipment is sold subject to mutual agreement that it is warranted by M K Martin Enterprise Inc. (hereafter called the company) to be free of any defects of material and workmanship. But the company shall not be liable for special, indirect or consequential, damages of any kind under this contract or otherwise. The company's liability shall be limited exclusively to replacing or repairing without charge, at it's factory or elsewhere, at it's discretion, any material, or workmanship defects, which becomes apparent within one year from the date of purchase. The company will have no liability for damages of any kind. The buyer by the acceptance of the equipment will assume all liability for any damages, which may result from the use or misuse by his employees or others. The buyer shall maintain and service the equipment as recommended in this Operators manual.

Warranty is voided if changes or alterations have been made without the written consent of the company.

This Warranty does not cover Rental or Commercial use of this equipment. This equipment is rated as agricultural.

For **Rental/Commercial** use, Warranty is for defects in material and workmanship, 90 days from date of purchase.

Warranty coverage is null and void unless the Warranty Registration form has been completely filled in and is on file at

M K Martin Enterprise Inc
3950 Steffler Road
Elmira Ont. Ca.
N3B 2Z3

For your record

Purchase Date Y20__ M__

Model # _____

Serial # _____

Please cut at dotted line and return this registration form to the company via Mail, Fax (519-664-3695) or e-mail the information to: sales@mkmartin.ca

M K Martin Inc
3950 Steffler Road
Elmira Ont. Ca.
N3B 2Z3

Buyers

Purchase Date Y20__ M__

Model # _____

Serial # _____

Name _____

Address _____

Postal Code _____

Introduction

Principals of operation

The Land Leveler is made of a hitch, a Mouldboard with a replaceable cutting edge and a movable Wheel assembly. By pulling the implement over a high area and lowering the blade until it starts to shave the ground, (1 1/2 - 2") it then can be dragged to a lower spot and the contents can be left there by raising the blade a little.

This implement is not designed to carry load and carry material from one area to another.

Before using for the first time

- ✓ Read Operator's Manual
- ✓ Check all bolts for proper torque
- ✓ Grease Pivot Pins

After first 2 hours

- ✓ Retorque all bolts including wheel bolts
- ✓ Check for hydraulic leaks

After 10 hours

- ✓ Repeat 2 hour step

Using after break-in period

- ✓ Lubricate pivot pins
- ✓ Use a tractor with enough power and weight to handle the Leveler.
- ✓ Ensure the drawbar hitch pin has a mechanical retainer.
- ✓ Ensure the safety chain is installed.
- ✓ Check condition of Cutting Edge
- ✓ Check Hydraulic Oil level in the tractor. Add if required.
- ✓ Use a clean cloth to clean couplers before attaching to the tractor
- ✓ Check tire pressure. 32 psi, (220 kPa)

Tractor

- ✓ Fix drawbar in the center position to prevent it from swinging.
- ✓ After the implement is attached, raise the jack and rotate it 90° to its stowed position.

Storage

- ✓ After the seasons use, inspect the machine for wear and damage. This is a good time to repair or replace worn and damaged parts. It is then ready at the beginning of the next season.
- ✓ Wash the machine to remove all dirt and residue.
- ✓ This is also a good time to inspect the hydraulic hoses for cuts and abrasions.
- ✓ Touch-up all paint nicks and scratches to prevent rusting
- ✓ Oil exposed hydraulic cylinder shafts to prevent rusting.
- ✓ Repack wheel bearings
- ✓ Store in an area that is dry, level and safe from activity, including children.

Safety

Take Note! This safety symbol is found throughout this manual to call your attention to instructions involving yourself and others working around the machine.

- **Failure to follow these instructions can result in injury or death!**



This symbol means

**--Attention!
--Become Alert!
--Your Safety is involved!**

Signal words are used in this book.

Caution: Indicates a potentially hazardous situation that may result injury.

Warning: Indicates a potentially hazardous situation that could result in serious injury or death.

Danger: Indicates a hazardous situation that needs to be avoided. It is you the operator that needs to be aware of these dangers.

If you have any questions not answered in this manual, please contact your dealer or M K Martin Enterprise Inc.

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Safety – It's in your interest.



Safety Guidelines.

Safety of the operator is one of our main concerns, however it is up to the operator to practice caution.

To avoid personal injury, study the following precautions and insist that those working with you to follow them.

Replace any decals that may be missing or not readable. Location of decals are indicated elsewhere in this manual.

Do not use this machine while under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment should not be operated by children: or those unfamiliar with the operation. **Do not allow persons to operate this machine until they have read this manual and/or were instructed by a qualified person.**

Do not paint over, remove or deface any safety signs or warning decals on the Meteor® Blower. **Observe all safety signs and practice the instructions on them.**



Be Safe! Stay Safe!



Remember you the operator are responsible for the safe operation of this equipment. Before operating this equipment take lessons from an experienced operator, read through this manual and understand each step of operation prior to doing any work with the equipment.


Understand you are the primary safety device.

When operating this equipment keep spectators at a distance to allow you to concentrate on the job at hand.

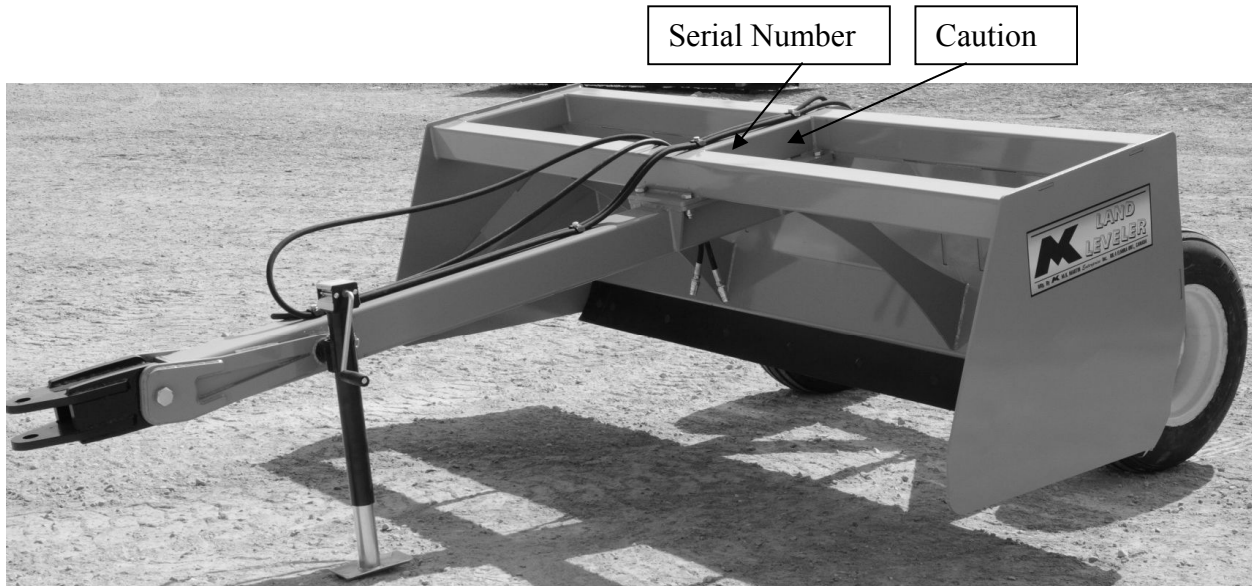
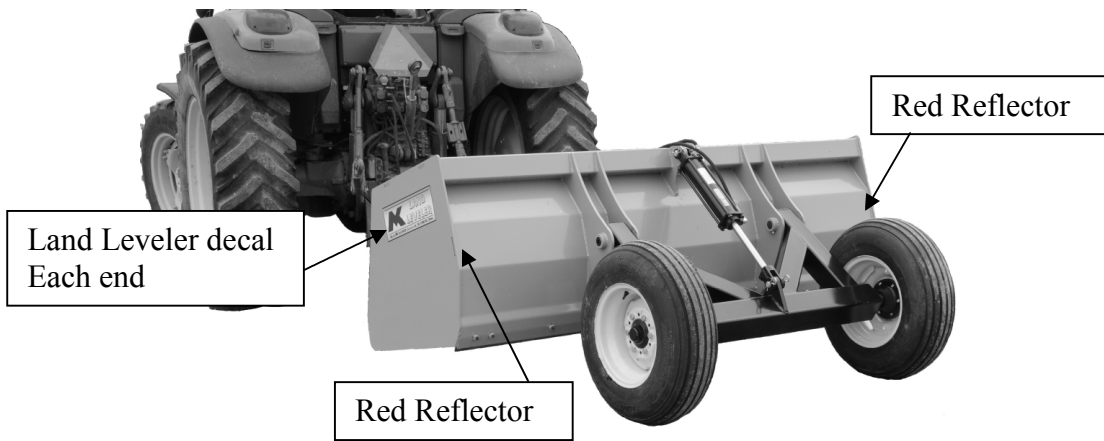
Anybody who has not read and understood these operating and safety instructions is not qualified to operate this equipment.

Do not modify or alter this equipment in any way.


Any unauthorized modifications may impair the safety and function of this equipment.

- Read and understand the Operator's Manual
- Wear appropriate protective gear, This list may include but is not limited to: a hard hat, safety shoes, safety glasses or goggles, wet weather gear, hearing protection, respirator or filter mask.
- Do not allow riders
- Lower blade to the ground, place all controls in neutral, set parking brake, stop the engine and remove the key before servicing, adjusting or repairing this equipment.
- Review safety related items with all operators annually.
-  Hydraulic lines may have high pressure fluid in the lines, even when the lines are disconnected. **Remember** a small leak at high pressure may be invisible yet can penetrate the skin. If this happens get medical attention immediately, serious infection or toxic reaction can develop when hydraulic fluid pierces the skin. Use caution when working with hydraulic components. Ensure there are no leaks, all fittings are tight and all components are in good repair.
- Use a piece of wood or cardboard as a backstop when searching for leaks, NEVER your hand or fingers.
- Always relieve pressure before disconnecting or working on hydraulic system.
- Before transporting on a highway clean reflectors and SMV signs
- Obey all local highway laws when transporting this equipment on roads.
- Always travel at safe speeds
- Maintain and keep tires in good condition. Have a qualified serviceman perform the required maintenance.
- Ensure that all decals are legible. See your dealer parts department for replacements.

Thrifty Land Leveler Decal Location



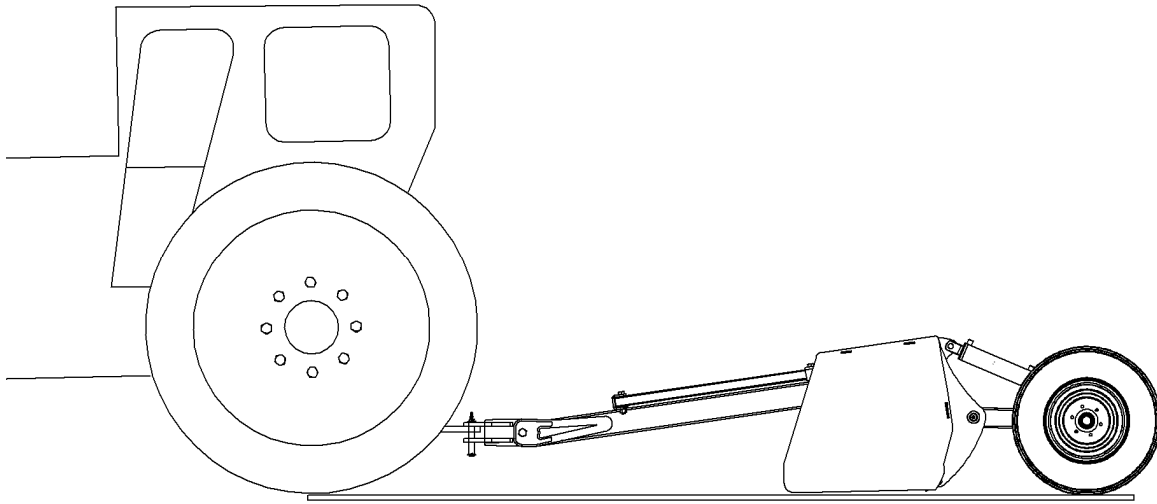
Part # 21921

 CAUTION
<ol style="list-style-type: none"> 1. Read Operator's Manual before using machine. 2. Stop tractor engine, lower machine to the ground, place all controls in neutral, set park brake, remove ignition key and wait for all moving parts to stop before servicing, adjusting, repairing, unplugging or fitting. 3. Install and secure all guards before starting. 4. Keep hands, feet, hair and clothing away from moving parts. 5. Do not allow riders. 6. Keep all hydraulic lines, fittings and couplers tight and free of leaks before using. 7. Clean reflectors, SMV and lights before transporting. 8. Install safety locks before transporting or working beneath components. 9. Add extra lights and use pilot vehicle when transporting during times of limited visibility. 10. Use hazard flashers in tractor when transporting. 11. Install safety chain when attaching to tractor. 12. Keep away from overhead electrical lines. Electrocutation can occur without direct contact. 13. Review safety instructions with all operators annually.

Part # 21920

Operating the Leveler

The leveler will work better and easier if the soil is plowed and disked before leveling. The Land Leveler blade is situated between the tractor wheels and the leveler wheels and will shave or plane off the high areas and fill in low areas. For leveling purposes' adjust the rear wheels with the hydraulic cylinder so that the rear tractor wheels, the cutting edge and the rear leveler wheels form a straight line *as shown*. If the rear wheels are lower the leveler will progressively add soil and if the wheels are higher the leveler will progressively cut deeper.



It may be necessary to repeat the operation in cases of severe irregularity. After your field is leveled you may find that the filled in areas have settled and need more leveling the following year, this is normal.

Sign-Off Form

M K Martin Enterprise Inc follows the general Safety Standards specified by the American Society of Agricultural Engineers (ASAE) and the Occupational Safety and Health Administration (OSHA). Anyone who will be operating and/or maintaining the Cutter must read and clearly understand ALL Safety, Operating and Maintenance information presented in this manual.

Do not operate or allow anyone else to operate this equipment until such information has been reviewed. Annually review this information before the season start-up.

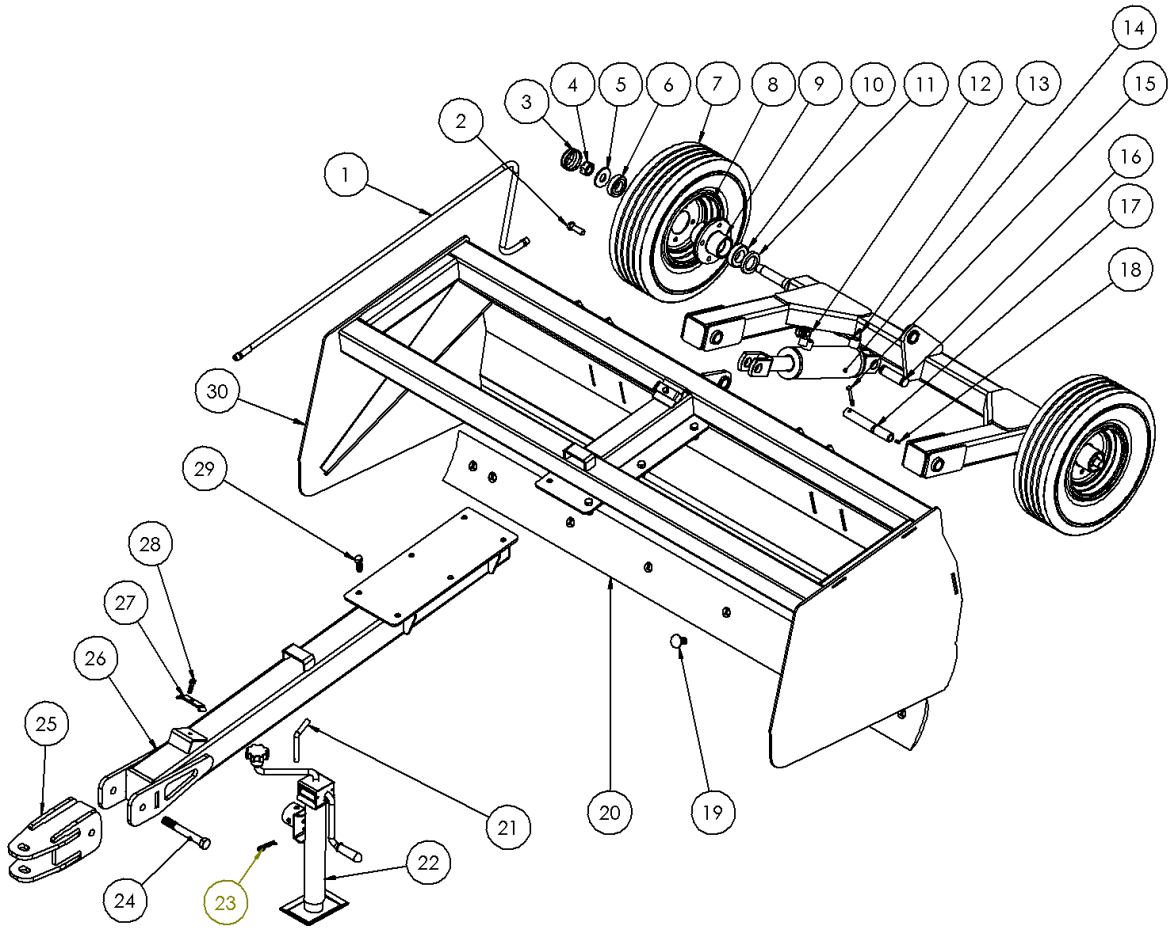
Make these periodic reviews of SAFTEY and OPERATION a standard practice for all your equipment. We feel that the untrained operator is unqualified to operate this machine.

A sign-off sheet is provided for your record keeping to show that all personnel who will be working with the equipment have read and understood the information in the Operator's Manual and have been instructed in the operation of the equipment.

Sign Off Form

Date	Employee's Name	Employer's Name

Compact Land Leveler Parts



Item #	Description	Part #	Qty
1	Hydraulic Hose	519-511709	2
2	Wheel Bolt	500-20	8
3	Dust Cap	D-1000	2
4	Nut	SJ-114	2
5	Washer	EM-1000	2
6	Outer Bearing Cup	L44610	1
	Outer Bearing Cone	L44649	
7	Tire 5.7x8	OL	2
8	Rim 8"x 4 bolt	OL	2
9	Hub Assy	21917	2
10	Inner Bearing Cup	<i>Same as Item #6</i>	2
	Inner Bearing Cone	<i>Same a Items #6</i>	
11	Seal	CR523696	2
12	Hydraulic Fitting	9515x8x6	2
13	Cylinder Pin Clip	OL	4
14	Hydraulic Cylinder	21918	1
15	Bolt 1/4 x 2 1/2 c/w ln	OL	2
16	Cylinder Pin	OL	2
17	Lift Swivel Pin	32051	2
18	Grease Fitting 1/4-28 straight	OL	2
19	5 ft Plow Bolts 5/8x1 3/4 c/w m	OL	7
	6 ft Plow Bolts 5/8x1 3/4 c/w n	OL	8
	7 ft Plow Bolts 5/8x1 3/4 c/w n	OL	9
20	5 ft Cutting Edge	783-100-504	1
	6 ft Cutting Edge	783-100-506	1
	7 ft Cutting Edge	783-100-507	1
21	Jack Pin 1/2" Bent Pin	OL	1
22	Jack	21915	1
23	Hair Pin 1/8"	OL	1
24	Bolt 3/4x6 c/w ln	OL	1
25	Hitch	32055	1
26	Tongue	32056	1
27	Hose Clamp	10211	2
28	Bolt 5/16x1 1/4 c/w lw	OL	2
29	Bolt 1/2x1 1/2 c/w ln	OL	6
30	5 ft Main Mouldboard	32057	1
	6 ft Main Mouldboard	32063	1
	7 ft Mouldboard	32068	1

Note:

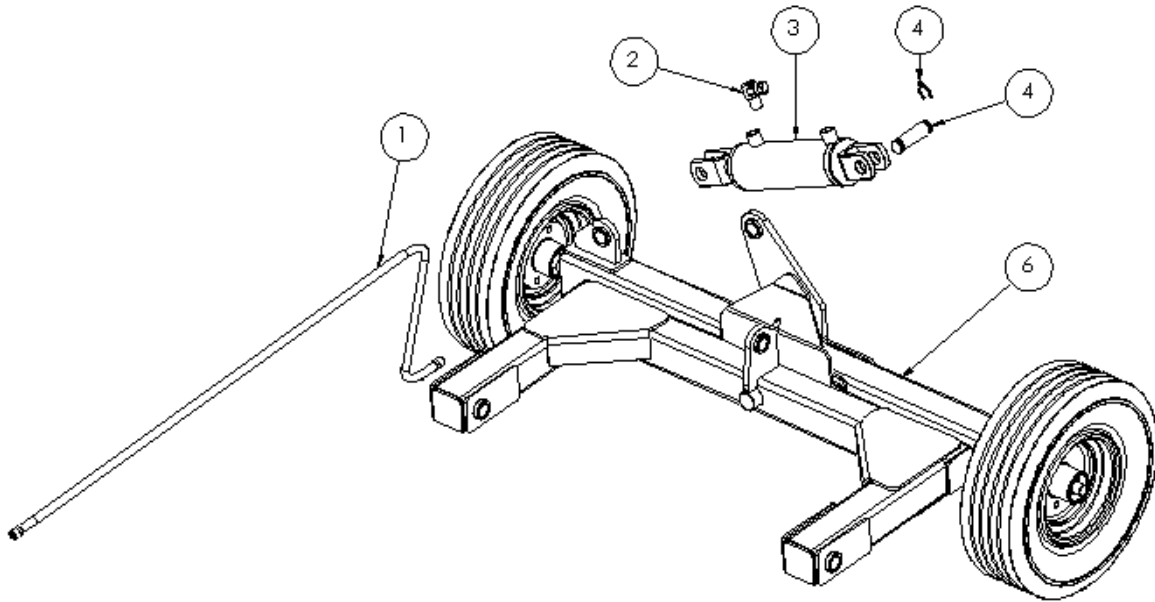
OL= Obtain Locally

n= Nut

lw= Lockwasher

ln= Locknut

Compact Land Leveler Tilt Option Parts



Item #	Description	Part #	Qty
1	Hydraulic Hose	519-511709	2
2	Hydraulic Fitting	9405x6x6	2
3	Hydraulic Cylinder 2 1/2 x 4	21919	1
4	Cylinder Clip	OL	4
5	Cylinder Pin	OL	2
6	Axle Assy	32536	1

Note: see standard leveler parts for hubs, bearings, rims and tires
OL = Obtain Locally

Compact Land Leveler Electric Hydraulic Power Pack

For operating the leveler when no hydraulics are free or available on the tractor.

As an ordered option (or added on later) we have a 12volt electric hydraulic pack available. The mounting bracket can be welded on to the leveler frame and the hydraulic hoses and battery cable installed.

The hoses and the cable should be securely tied to the frame to keep the covering from rubbing through and the cable or hoses getting caught and cut or pinched during the operation of the leveler.

We suggest installing the cable on the tractor directly on the battery or the battery cable on the starter relay. The other cable should be bolted on a clean part of the tractor frame. Using silicon grease will keep the surfaces clean for better electrical contact.

The 4 button control can be located for operator comfort and accessibility. Keep in mind that it is part of the leveler and has to be taken off the tractor when unhitching the leveler.

The Hydraulic oil should be ISO 46 all season hydraulic oil.

This hydraulic unit is not designed for continuous use

For Short time-duty type S2

Operation at constant load of short duration, without thermal equilibrium being reached. A no load follows sufficient for the motor to return to ambient temperature.

Example S2-4.5 minutes

The motor runs continuously for 4.5 minutes and stops a time sufficient to return to ambient temperature.

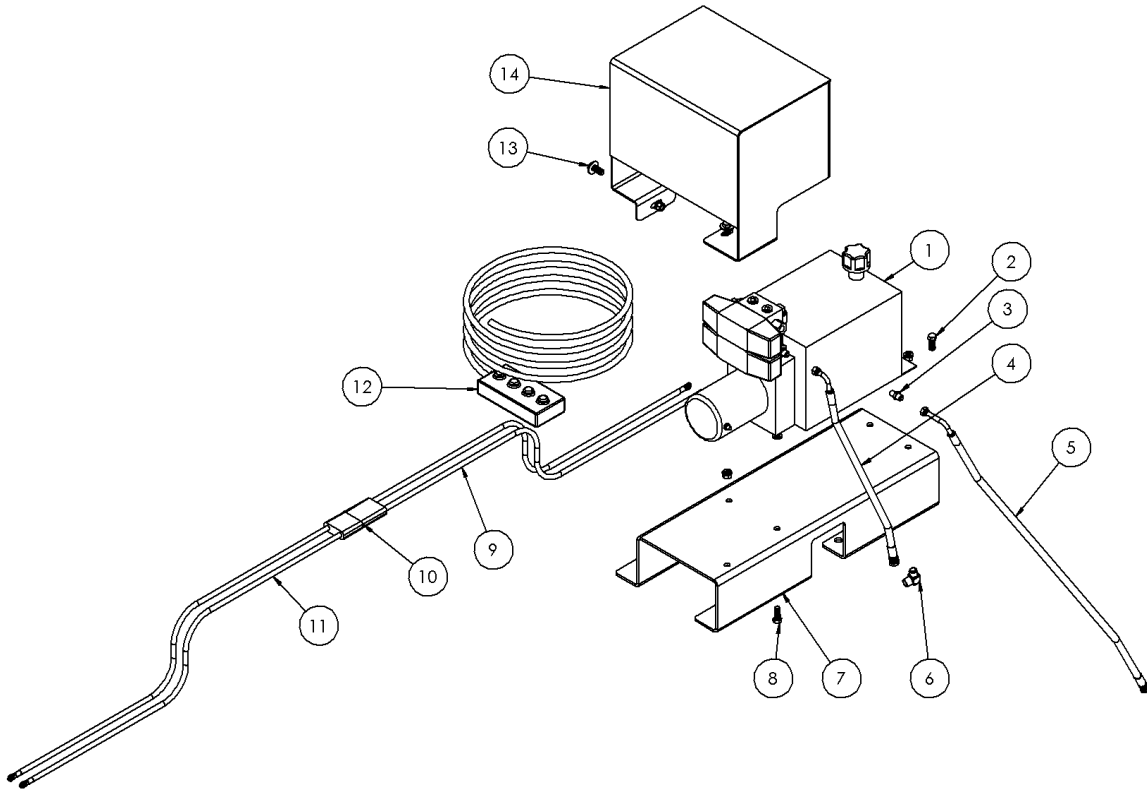
Intermittent periodic duty type: S3

Operation which consist of a sequence of uniform cycles (duty cycle 10 minutes) consisting of at constant load and no load period.

Example: S3=13%

The motor runs 1.3 minutes and stops 8.7 minutes. (1.3 minutes out of 10 minutes.)

Compact Land Leveler Electric Hydraulic Power Pack



Item #	Description	Part #	Qty
1	12 Volt Hydraulic Pack c/w Control	21922	1
2	Bolt c/w lw, n	OL	2
3	Hydraulic Fitting	2404-0404	4
4	Short Hydraulic Line	21828	2
5	Long Hydraulic Line	21829	2
6	Cylinder Fitting 90°	2501-0606	4
7	Power Pack Mount (field welded)	32061	1
8	Bolt c/w lw	OL	2
9	5ft Battery Cable	21832	4
10	Cable Connector	21923	1
11	12ft Battery Cable	21834	
12	4 Button c/w Cable	21924	1
13	Bolt 3/8x1 c/w fw, lw, n	OL	2
14	Shield	32506	1

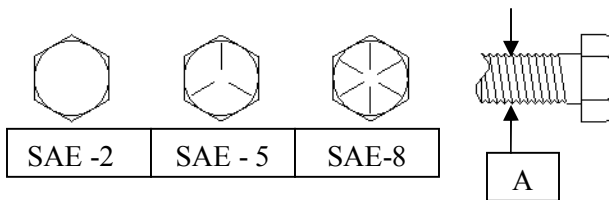
Bolt Torque
As used on this equipment

Bolt torque table shown below gives torque values for the various bolts used.
This chart is for non-lubricated threads.
Replace with the same strength bolt.

Torque Specifications. Torque values are identified by their head markings

Diameter	SAE 2		SAE 5		SAE 8	
	Lb-ft	N.m	Lb-ft	N.m	Lb-ft	N.m
1/4	6	(8)	9	(12)	12	(17)
5/16	10	(13)	19	(25)	27	(36)
3/8	20	(27)	33	(45)	45	(63)
7/16	30	(41)	53	(72)	75	(100)
1/2	45	(61)	80	(110)	115	(155)
5/8	95	(128)	160	(215)	220	(305)
3/4	165	(225)	290	(390)	400	(540)
1	225	(345)	630	(850)	970	(1320)

Allen head cap screws are similar to SAE 8 quality.



These torques are for a reference only. Not all these sizes and grades are necessarily used in this machine. Bolts that are used as a pivot or hinge have to be used with a locknut, therefore only tighten enough to secure the bolt and still allowing the part to rotate freely.