

ALPLER



MANUAL FOR LASER CONTROLLED LEVELING MACHINE

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CONTENTS

Warning Signs And Their Definitions On The Implement	3
Safety Rules And Regulations	4
General Information About Laser System	5
Precautions To Consider During The Transportation Of Laser Equipment.....	5
Battery	5
Installing Battery Inside The Laser Transmitter	5
Keys And Indicators On Ri-Sv2s	6
Keys And Indicators On Control Box	7
Definitions Of Flashing Lights On Indicator Box	7
Adjusting The Speed Of Headstock Of Laser Transmitter's Rotation	8
Parts Of The Laser Leveling Machine	8
Working Position	8
Transport Position	8
Installation	10
Mounting Of Control Unit Into Tractor	10
Mounting Of Leveler Machine To The Tractor	10
Mounting Of Laser Transmitter	11
Mounting Of Laser Transmitter	11
Horizontal Application	11
Slope Settings	12
Assigning Values On The (X) And (Y) Rows	13
Grade Setting For Zero (0) Slope Application (No Inclination)	13
Grade Setting For Zero (0) Single Slope Application	13
Grade Setting For Dual (Two Axis) Slope Application	14
Initial Measuring (Conducting A Topographic Survey)	14
Grade Setting For Dual (Two Axis) Slope Application	15
Second Day Adjustments On An Unfinished Field	16
Transforming From Work Position To Transport Position	17
Troubleshooting	18
In Case One Side Of The Blade Dives More On Soil	18
Maintenance	20
Technical Specifications Of Laser Leveling Machine	20
Technical Specifications Of Laser System	20

Dear Farmer,

First and foremost, we would like to congratulate you for making the right decision on the way to a more successful farming by choosing ALPLER brand. Being your agricultural partner, we offer our product as a combination of high quality, lower operational costs and reliable after-sales service conception.

Further, All ALPLER products are designed and tested in co-operation with universities, agricultural institutions and farmers aiming to secure the highest performance, efficiency and safety of the product. We kindly ask you to read this manual carefully for an effective and longtime utilization of the equipment and for your own safety, before starting the use of equipment. ALPLER warranty is void, if the instructions in this operating manual are not followed properly. Finally, all implements have been designed and manufactured for agricultural use only; damages caused by any use beyond this purpose exclude ALPLER's liability. Operation, repair and maintenance of the implements may only be performed by people who are competent with it and advised about the possible dangers.

We wish you a bountiful and profitable harvest for many years to come.

With aim to serve you best for many more years...



Attention!

Should the customer resell the machine later, the operating manual needs to be transferred to the new owner, who must then be instructed in the recommended guidelines referred to herein.

WARNING SIGNS AND DEFINITIONS



Read the instruction manual and follow the instructions given before using the implement.



PINCH POINT! There is a crushing danger amongst the moving parts of the implement.



Do not stand between the tractor and the implement.



Do not stare into the laser beam with bare eye or optical device. Use CLASS 3A LASER PRODUCT



CRASH DANGER! Keep clear while the scraper wings are unfolding or closing.



Points need to be protected against damages or do not hammer or apply force.



Recommended Oil



Points need grease



SAFETY RULES AND REGULATIONS

1. Read the instruction manual carefully before using the implement and follow the instructions set forth in this manual.
2. Do not move the tractor until you are sure enough that the leveler machine is fully mounted while connecting to the tractor and as such do not move until the machine is fully dismantled while disconnecting.
3. Before beginning to operate the tractor, check surrounding area for any obstacle and/or living things. (Watch for children)
4. Machine's rotational area should be watched while turning right or left during operation. Never stay in the turning and slew area of the implement.
5. Plug the electric socket and use the lamps and signals when using public roads and adhere to the traffic rules.
6. Keep moving objects and living things away from the machine while unfolding/spreading or closing of the scraper wings(bucket wings).
7. Do not attempt to close scraper wings (bucket wings) while main bucket is full and/or the safety pins which is used for fixing the scraper wings are inserted. While closing the scraper wings, be sure that main bucket is empty, and the safety pins are detached. Raise the leveler to a sufficient height above the ground while the scraper wings are folding.
8. Do not stare into the laser beam or do not look directly into the laser beam with any optical instruments, as this may cause eye injury or blindness. When working in open areas, avoid using the laser at eye level. Laser transmitter is a Class 3A Laser Product.
9. Charge the batteries in dry conditions. There is an electrical shock, while charger gets wet or contacts to water. If the charger is wet or gets wet, do not use and do not turn the charger on.
10. Watch hydraulic pipes (nozzles) closely and use them carefully as they are operating with high pressure.
11. Make sure that hydraulic pipes are plugged in properly. Connection faults with the pipes may lead to unintended moves of the machine and increase the risk of crash.
12. Reduce the pressure while removing the hydraulic pipes and turn off the tractor, if possible.
13. Control the hydraulic pipes regularly for any tear down or wear. Change the pipes in such cases with the original ones.
14. Hydraulic leaks and outflows may cause severe skin injuries as they are operating with high pressure. Be careful against those situations and apply doctor in case of any incident.
15. All bolts and nuts should be checked frequently; old and missing bolts and nuts should be replaced with new ones and screwed into the correct holes.
16. Be sure that the machine is fully fixed to the ground against flopping, rolling or overturning while engaging with tires.
17. Any human or physical load should not be carried over the machine whether during operation or transportation.



LASER SYSTEM

GENERAL INFORMATION



Laser Set
Carrying Case



Laser
Transmitter



Laser Receiver



Control Box

LASER INSTRUMENT HANDLING PRECAUTIONS

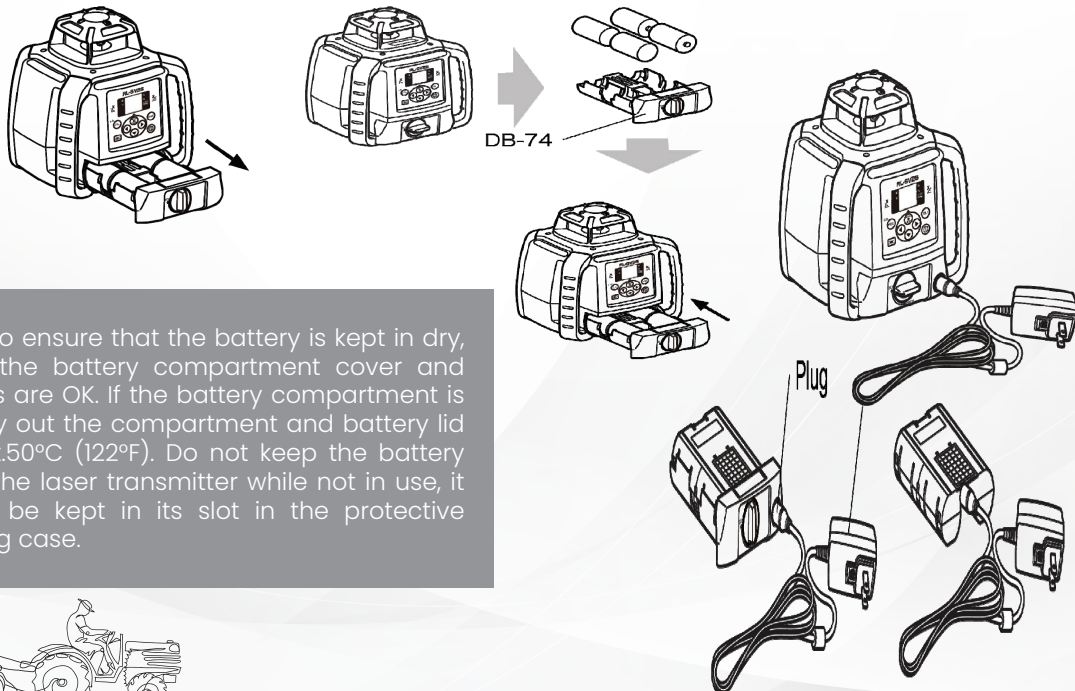
A rotor laser is a precision optical instrument and should be treated with care. Always transport the laser in its special transport case to protect it from possible impact and damage. Severe vibration and/or impact can affect beam accuracy.

BATTERY

The ML4 operates with its special battery (7.2V Makita TM Ni-Cd rechargeable type). To recharge the battery, place the battery in its particular charger. The red light flashes on during recharging and when the battery is fully recharged, it flashes off. A complete recharge takes about an hour. A fully charged battery has a capacity of approximately 20 hours of operation (at rpm 300) or more.

INSERTING THE BATTERY TO THE LASER TRANSMITTER

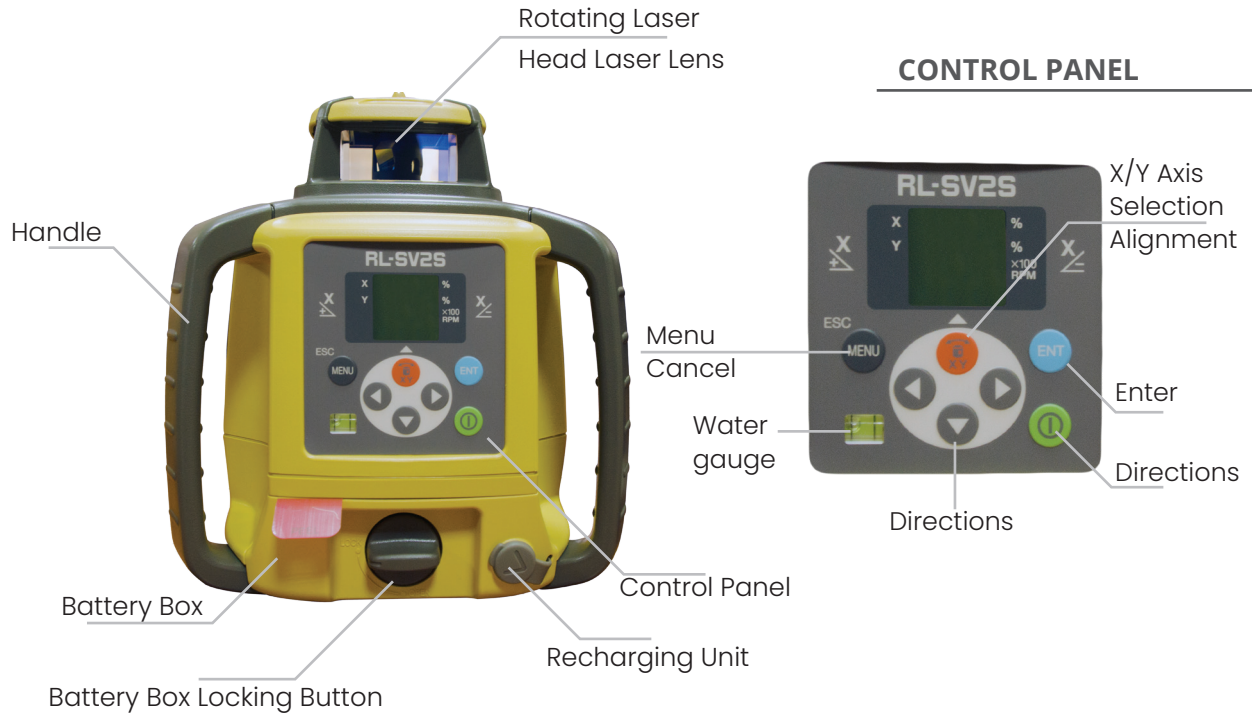
To insert the battery inside laser transmitter, first change the position of button over the battery box to OPEN and remove the box. Then insert the battery with the negative pole upwards, and the poles towards the instrument. The battery should slide in easily, except for the last 1 cm. Finally, battery will be inserted fully with a light push downwards. "Bip" sound is heard, when fitted completely into its dock in transmitter. Do not apply excessive force while inserting the battery. After inserting the battery, close the battery lid and turn the button in "LOCK" position.




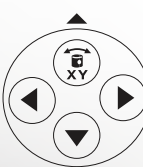



NOTE: To ensure that the battery is kept in dry, check the battery compartment cover and gaskets are OK. If the battery compartment is wet, dry out the compartment and battery lid at max.50°C (122°F). Do not keep the battery inside the laser transmitter while not in use, it should be kept in its slot in the protective carrying case.



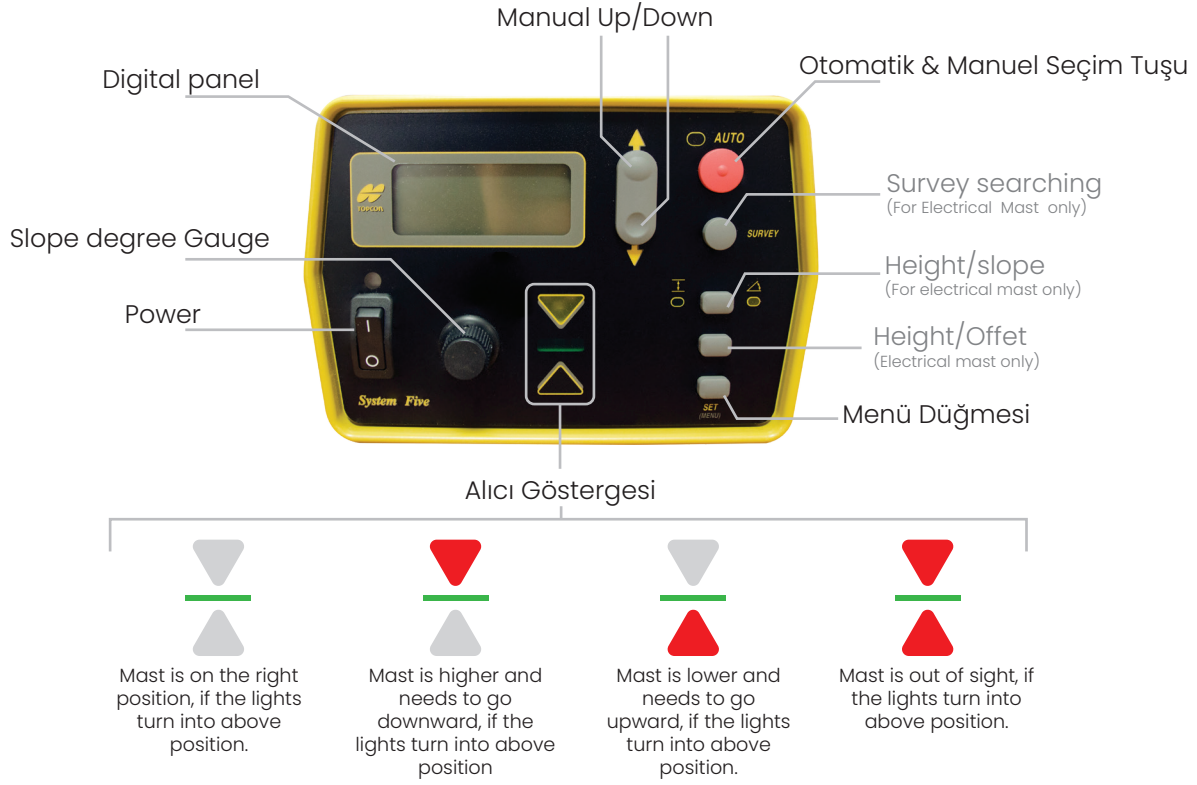
BUTTONS AND INDICATORS ON RL-SV2S (LASER TRANSMITTER)



BUTTON	BUTTON TITLE	FUNCTION
	ENTER	Ends up data entry and sends data to device
	Menu/cancel	Selects a menu item. Cancels the data entry and restores it to previous situation.
	X/Y Selection of axis Alignment button	Horizontal rotation: Makes changes on slope adjustment screen for each axis. Vertical rotation: Makes changes on alignment position.
	Directional Buttons	Directory buttons indicate the code selection while slope adjustment, shifting the digits and entering the number as well as the levelling adjustment.
	ON/OFF Button	Shows the power on and off for RL-SV2S .

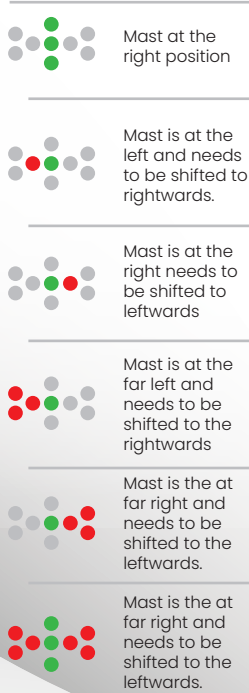


BUTTONS AND INDICATORS ON CONTROL BOX

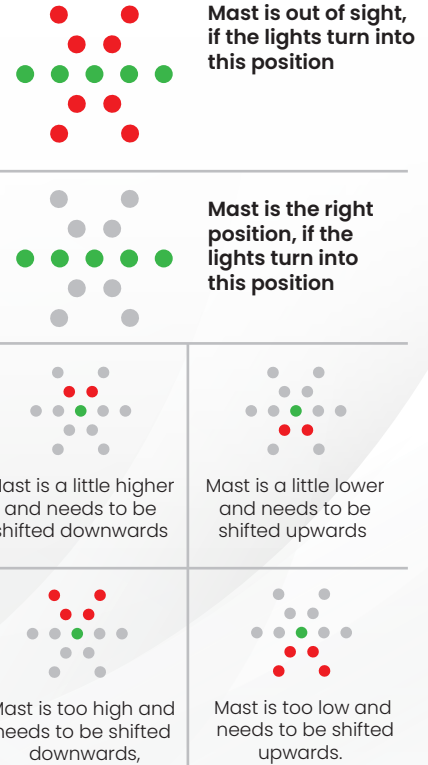


LIGHTS AND DEFINITIONS ON LASER RECEIVER

Mast Right/left positioning Indicator (Not appropriate for device without right/left adjustment.)



Mast Up/Down Positioning Indicator

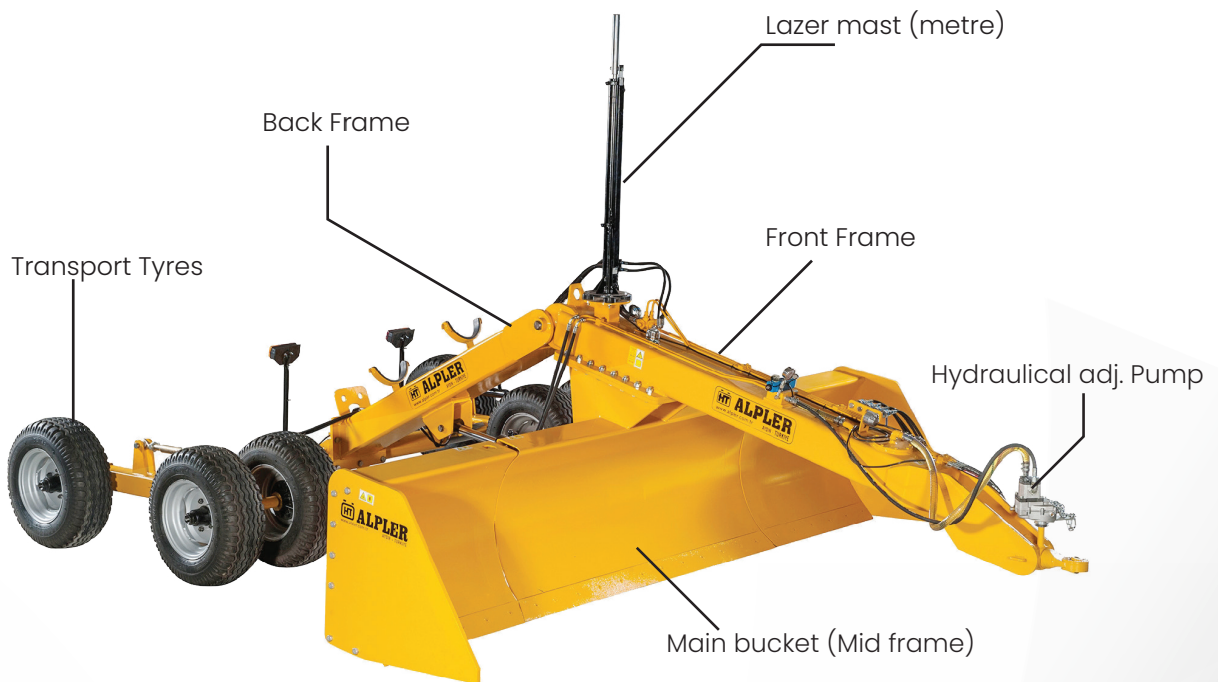


ADJUSTING THE ROTATIONAL SPEED OF LASER TRANSMITTER'S HEAD

To change the rotational speed, press the button **Rpm** and **MOTOR ROTATION 400rpm 00.00n** will appear. Flashing cursor should be shifted to MOTOR row and with using **↓** and **↑** desired rpm values can be assigned. Battery life will be shortened, if the rotational speed is increased. Ideal rotational speed is 300 or 400 per minute. Rotational speed should be increased during situations that adversely affect the signal transmission like rainy, foggy or dusty weathers.

PARTS OF LEVELING MACHINE

WORKING POSITION



TRANSPORT POSITION



Tyre Adjustment Piston

Tyre Piston

Bucket Piston for scraper wings

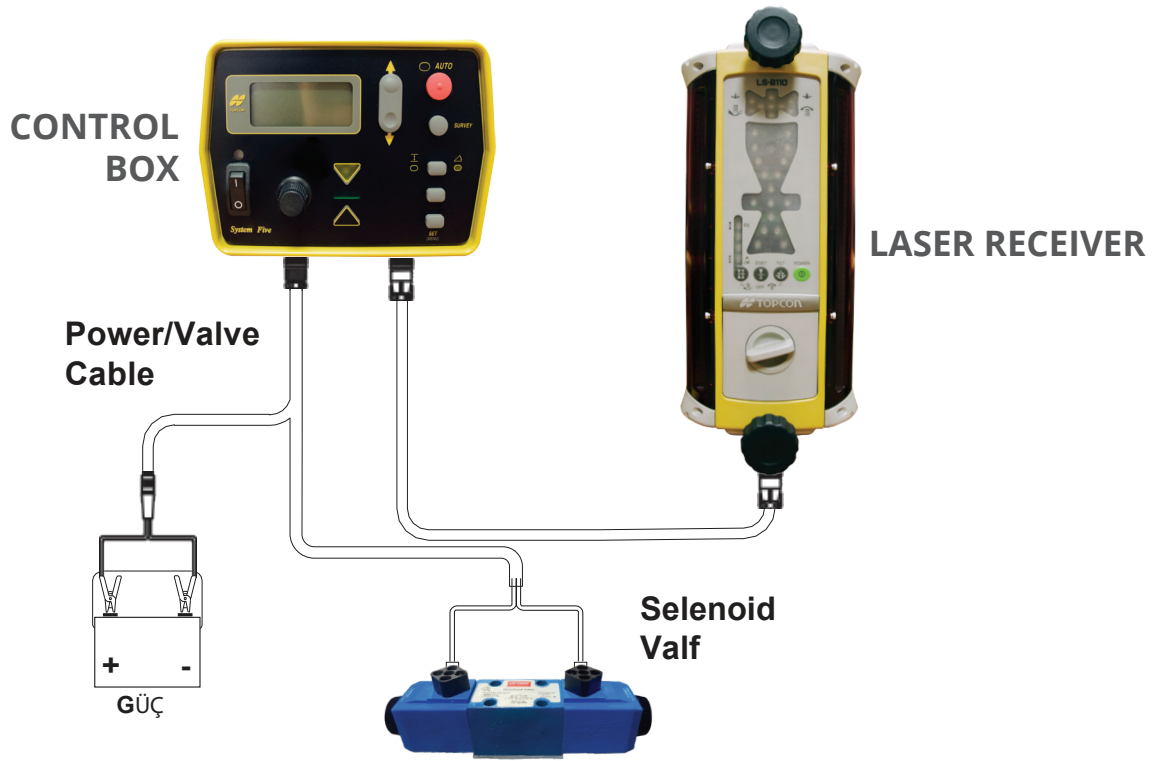
Frame Piston
(mid piston- lift kit)

Solenoid valve

Oil Cycle Pipe



SET UP PROCEDURES



MOUNTING OF CONTROL BOX TO TRACTOR

Mount the special "U" shape plate of the control box to a place inside the tractor cabin where the driver can easily reach and operate. Fix the control box on to the plate using supplied bolts from left and right side. The end side of the control box has an electrical cable which consists of two wires. Red wire is the positive pole and the blue wire is the negative. The wires should definitely not be plugged into the wrong poles.

Plug the laser receiver cable, control box electric cable and the Solenoid valve cable into the right sockets on the control box. Each plug and socket pair is designed unique to eliminate possible erroneous connection on the control box valve and cannot be plugged improperly.

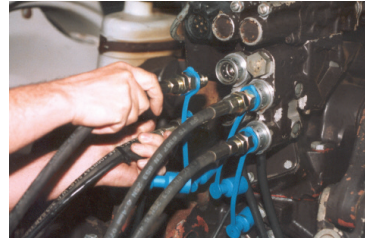
MOUNTING OF LEVELER MACHINE TO TRACTOR

1. Tractor should be approached to the Machine. Traktör uygun şekilde makinaya yaklaştırılır.
2. Pump is removed from the Machine and plugged into the tractor's hydraulic pump outlets. Connect it with the PTO shaft on the tractor while putting the aeration plug on the top and fix it by the chain to prevent possible rotation and start the PTO Shaft with 540 rpm.
3. Turn the control box on after attaching it to tractor.
4. Adjust the leveler machine's trailer head until the head corresponds to the tractor's draw bar at the same level by pressing raise/lower button on the control box.
5. Move the tractor closer to attach the leveler machine and insert the hitching pin and fix it by the safety pin.



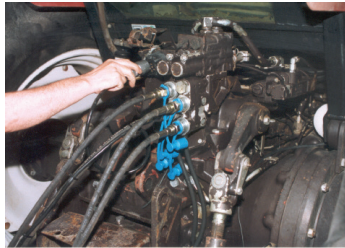


Picture 1



Picture 2

6. Hydraulic pressure hoses from the leveler machine are plugged in to the tractor's hydraulic pump outlets by two pairs. The two hydraulic pressure hoses on the left side of the leveler and the other two hydraulic pressure hoses on the right side of the leveler are two pairs. While doing this operation please keep in mind that the direction of oil flow from the inlet/outlet sockets of hydraulic system of your tractor. (see Picture 1&2)



Picture 3

7. Insert the lamp plug in the socket on the back of the tractor. (see Picture 3)
8. Please be sure that you have completed all of the above steps before you move the tractor.
9. While dismounting the leveler from the tractor, please follow the same steps reversely.

MOUNTING THE LASER RECEIVER

Laser receiver should be screwed into the dock (special connecting point) of the mast and the receiver's cable which is coming out from the control box should be plugged into the laser receiver.

MOUNTING OF THE LASER TRANSMITTER

Tripod should be removed from its compartment on the Machine and set up at a smooth point on the field. Take the laser transmitter from its transport case, unscrew the transmitter attaching piece from the tripod and connect it with the transmitter, then screw the transmitter on to the tripod.

Turn the transmitter on, enter the desired grade values into the transmitter, rotate it to the direction of work by observing the marks on its sides and fix it by the bolt.

Open the laser safety cover on the top of the transmitter first and raise the tripod by extending each leg one by one. While raising the tripod, observe not to lay the transmitter beyond $\pm 10\%$ self-calibrating range, otherwise it will turn itself off automatically and needs to be turned on again.



HORIZONTAL MODE



should be pressed and the laser transmitter will be turned on afterwards. Battery icon will also be seen on the opening screen

WAITING
--CALIBRATING--

When it is turned on, ML4 will automatically start calibration and the notice comes up as shown in the picture on the left.

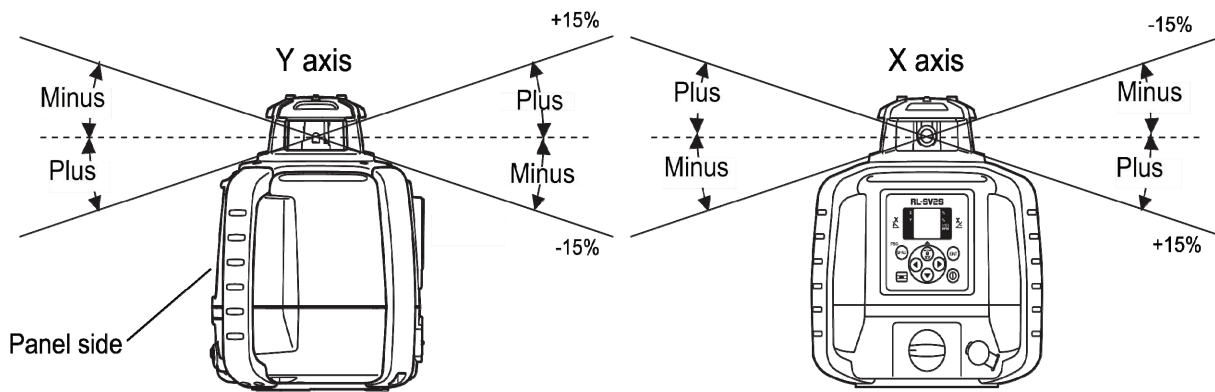


Final step in calibration is the stabilization of laser. Laser counts from 0% to 100% during stabilization. The notice comes up in the screen as in the picture on the right. Laser transmitter should not be moved during calibration, it would automatically restart calibration in such cases.

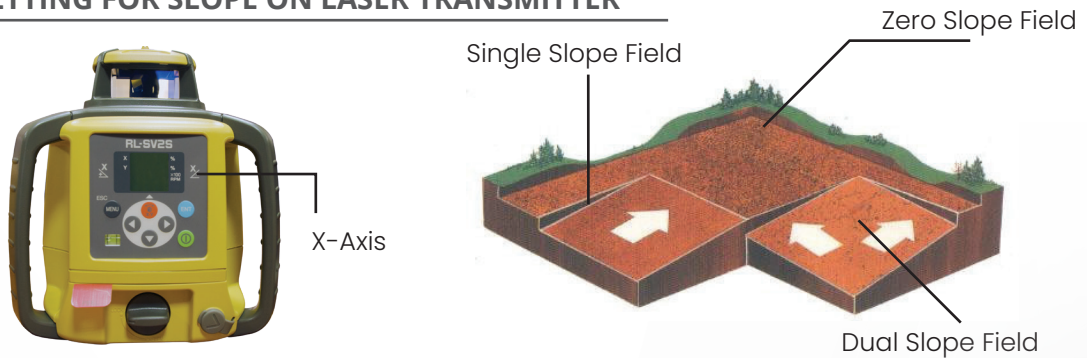
STABILIZING 02%
--CALIBRATING--

Laser head will begin rotating along with laser itself. Laser transmitter will calibrate itself with (+/-) 10° inclination. If the laser transmitter is positioned on an inclination or tilt more than 10°, a notice comes up in the screen as shown in the picture. In case of such situations, tripod should be corrected.

OUT OF RANGE
TILT LEFT



GRADE SETTING FOR SLOPE ON LASER TRANSMITTER



If desired values are assigned to X and Y rows, the slope will be given according to the angles, displayed on the laser transmitter as it is shown in the picture. If the desired value is marked as (-) for any of X or Y row or both; then the laser transmitter will give the slope in the direction of the inverse angle, displayed on the laser transmitter.

Here is the example for X-axis below. The same applies for Y-axis, as well.

X:00.000 = X - axis with no slope/Zero slope

X:00.005 = On X-axis, in 100 mt. the difference in elevation will be 5mm (as X-axis is marked on the transmitter)

X:00.010 = On X-axis, in 100 mt. the difference in elevation will be 10mm (as X-axis is marked on the transmitter)

X:00.100 = X-axis, in 100 mt. the difference in elevation will be 1000mm (as X-axis is marked on the transmitter)



X:01.000 X-axis, in 100 mt. the difference in elevation will be 10000mm (as X-axis is marked on the transmitter)



X: 10.000 = On X-axis, in 100 mt. the difference in elevation will be 10000mm (as X-axis is marked on the transmitter)

X-00.010= On X-axis, in 100 mt. the difference in elevation will be 10mm (as the INVERSE of X-axis is marked on the transmitter since there is a negative sign at the beginning of the value)



ASSIGNING DESIRED VALUES FOR (X) AND (Y) DISPLAYED ON THE SCREEN

Desired values should be given to the X-axis on the screen, if the slope will be given to the X-axis, as such value should be given to Y-axis for an inclination toward Y-axis. To give a desired value to X-axis,  should be pressed hold, until the flashing cursor shifts to the right digit. Similarly, to give a desired value on (Y) axis, press hold  until the cursor comes to the right digit.

When the cursor shifts to the right digit on the screen, use up and down   arrows to give the exact desired values.

GRADE SETTING FOR ZERO SLOPE/NO INCLINATION ON THE FIELD

For working without any grade (flat area), the values on the transmitter screen should be given 00.000 for both X and Y axes.

X: 00.000

Y: 00.000

The enumeration on the screen is shown above. There will be no slope on any direction in this levelling. The direction of the laser transmitter is also insignificant, if the levelling will be operated with zero slope.

GRADE SETTING FOR SINGLE SLOPE APPLICATION

If it is desired to give single slope on the field, then the desired value should be given to only one axis (X or Y) and left the other axis 00.000. The direction of the transmitter should be configured by observing the axis mark on the side of the transmitter, which is the same axis that the value is given.

Sample 1:

X:00.020 Y:00.000

According to the sample 1 the slope will be only on X-axis and in 100 mt. the difference in elevation will be 20mm (as X-axis is marked on the transmitter)

Sample 2:

X:00.000 Y:00.030

According to the sample 2 the slope will be only on Y-axis and in 100 mt. the difference in elevation will be 30mm (as Y-axis is marked on the transmitter)

Sample 3:

X-00.040 Y:00.000

According to the sample 3 the slope will be only on X-axis and in 100 mt. the difference in elevation will be 40mm (as the as the INVERSE of X-axis is marked on the transmitter since there is a negative sign at the beginning of the value)

Sample 4:

X:00.000 Y-00.015

According to the sample 4 the slope will be only on Y-axis and in 100 mt. the difference in elevation will be 15mm at the opposite direction (as the INVERSE of Y-axis is marked on the transmitter since there is a negative sign at the beginning of the value)



GRADE SETTING FOR DUAL (TWO AXES) SLOPE APPLICATION

If it is desired to give dual slope on the field, then the desired values should be given to both X and Y axes.

If one of the slope of (X) and (Y)-axes is aimed to be the inverse angle of the axes on the laser transmitter, then the direction mark should be pressed hold and the flashing cursor needs to be brought to initial digit and with pressing mark (:) symbol should be changed to symbol (-). In this case, slope will be given inversely to the transmitter's angle.



Sample for Dual Slope Application

Sample 1: Normal slopes on both directions

X:00.020 Y:00.030

According to the sample 1, on X-axis in 100 mt. the difference in elevation will be 20mm (as X-axis is marked on the transmitter). On Y-axis in 100 mt. the difference in elevation will be 30mm (as Y-axis is marked on the transmitter).

Sample 2: One in normal, the other has Inverse slope

X:00.050 Y-00.010

According to the sample 2, on X-axis in 100 mt. the difference in elevation will be 50mm (as X-axis is marked on the transmitter). On Y-axis in 100 mt. the difference in elevation will be 10mm (as the INVERSE of Y-axis is marked on the transmitter since there is a negative sign at the beginning of the value).

Sample 3: Sloping inverse angle from both sides

X-00.040 Y-00.030

According to the sample 3, on X-axis in 100 mt. the difference in elevation will be 40mm and on Y-axis in 100 mt. the difference in elevation will be 10mm (as for both, the INVERSE angles of X and Y axes are marked on the transmitter, since there are negative signs at the beginning of the values).

INITIAL MEASUREMENT and TOPOGRAPHICAL SURVEY

1. Remove the tripod from its compartment on the leveler machine and set up on a suitable point on the field.
2. Mount the laser transmitter on its dock over the top of the tripod.
3. Enter the values for slope and slope direction using the laser transmitter.
4. Select the angle signs which are on the laser transmitter that signifies the direction of the slope and then fix the laser transmitter using its locking pin.
5. Raise the tripod to a sufficient height with raising its legs one by one.
6. Unfold and spread the scraper wings (bucket wings) of the leveling machine via pressing its hydraulic pump pistons.
7. Open the Control Box and bring it to MANUAL option.
8. Sketch/draw the grid map of the field on a piece of paper.
9. Entering from one corner of the field, lower the scraper/blade of the leveler machine where its blade is tangent to the ground.
10. Metric gauge, press up and down with using the hydraulic piston controllers to catch the green light. If the mast is higher, the warning sign flashes showing downwards (lower the mast's height in this case) during this operation. As such, if the mast is lower than the right position, the warning sign flashes showing upwards (lift the mast's height in this case). The same warning sign also appears on the control box.
11. When the green light is caught on receiver, the value on the mast which is shown by the indicator panel must be recorded on the grid map of the field, where the survey is launched.
12. Blade should not be over or under the soil, should be left tangent to the ground during this operation.
13. Survey should be conducted in every 20 to 25 metres depending on the roughness of the surface. Frequent survey makes leveling easier.
14. Add the values of measurement results (aggregate value) after the end of survey. Arithmetical average (mean value) will be taken by dividing the aggregate value to the number of measurements made.
15. Mast is adjusted to that average value.



EXAMPLE FOR THE INITIAL TOPOGRAPHICAL SURVEY

A 24	B 29	C 34	D 30
E 20	F 25	G 19	H 17
J 26	K 33	L 27	M 40
N 18	O 22	P 32	R 36
S 15	T 41	V 38	Y 34

There occurs an outline of the grid map of the field as shown on the left side after conducting the survey. These values should firstly be summed to have the aggregate value.

$$24+29+34+30+20+25+19+17+26+33+27+40 \\ +18+22+32+36+15+41+38+34=560$$

Then divide the aggregate value into the number of spots that has been measured. Arithmetical average (mean value) is found. In our example, aggregate value is 560 and the number of spots that the survey is conducted is 20. Then divide 560 to 20.

$$560/20=28$$

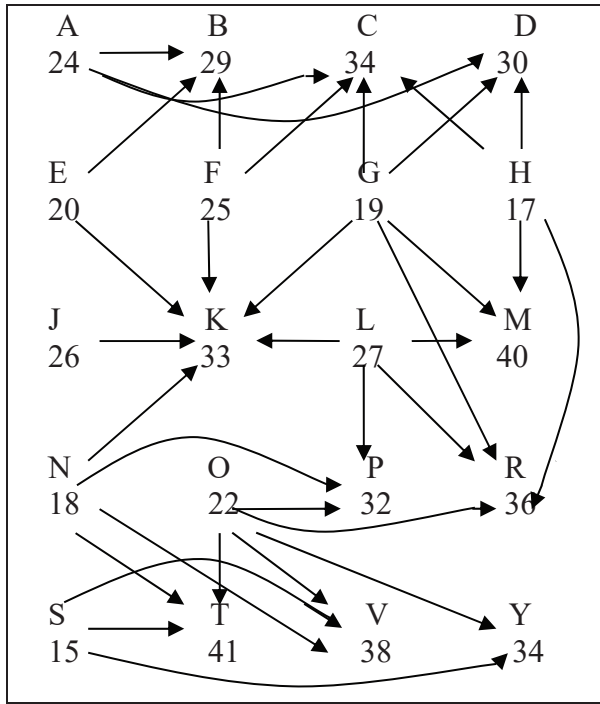
As the mean value is 28 (mean height), mast should be adjusted to 28 and leveling operation can be started. On the grid map, the points having higher values than the mean 28, represents the lower areas that must be filled. As such, the points having lower values than the mean 28, represents the higher areas that must be cut. In our example, the points A,E,F,G,H,J,L,N,O,S," are our higher areas

needs to be cut and carried to the lower points for filling. "B,C,D,K,M,P,R,T,V,Y" that are to be filled (Cut/Fill Map). Cutting should start from point L since it is the closest number to 28.

Higher numbers refer to the lower points and lower numbers refer to the higher points in the grid map. According to the above example grid map of the survey, highest spot is S and the lowest spot is T.

GRADE SLOPE SETTING FOR DUAL SIDE

1. Insert the safety pins of scraper wings (bucket wings)
2. Switch the control box to automatic mode
3. Starting from cutting point, the leveler moves to filling point. The machine detects cut and fill points itself, therefore the operator should not intervene the machine.
4. If the cutting point has a height more than the capacity of bucket or beyond the power of tractor, move the tractor slowly while carrying the load in smaller amounts.
5. If the tractor cannot pull the cut load, bucket should be raised little higher so that the tractor can be relieved. This can be done by clicking on up button frequently. As the cut operation is not completed in those spots, new passes needs to be made until the blade does not conduct a cut operation. If the up button is pressed hold instead of clicking several times, then the bucket will raise upwards a lot and will not turn its position automatically. In this case, operator should lower the bucket from control box.
6. When the bucket is full, it should be directed to the nearest fill point of the grid map. It would save time and fuel in that way.
7. When the bucket is empty, it should similarly be directed to the nearest cut point using the shortest way. When moving back with an empty bucket, gear can be up shifted to increase speed which will save time, as well.
8. The soil in bucket should be carried to the nearest possible points in the field.
9. Before starting leveling the field, all surface residues (clogs, maize etc.) need to be cut up or removed to aid soil flow from the bucket.
10. If the cut points of the field are relatively higher, chisel ploughs can be utilized and field can be tilled in cut points particularly for hard soil conditions, which will in turn save time and reduce costs.



To maximize working efficiency, try to make rather circular turns in the field and avoid sharp turnings. Ideal working route has been shown in the scheme on the left corresponding to the example. If the bucket is full, the leveler machine should move to the nearest fill point. Accordingly, soil needs to be carried to the nearest filling point. The shorter distance between cut and fill points, the more economical leveling has been made. While commuting in the field, '8' turns can be made to prevent empty moves. For instance, according to the scheme, if the cutting is made from the right side of the 'L' point toward the M spot, then the machine should go through the left side of 'L' spot toward 'K' point in order not to move with an empty bucket. As such, cut/fill operation can be completed within those locations in the field, through efficient routes. However, this operational mechanism is not always true. Thus, cut and fill locations need to be feasible to make possible for such operations.

SECOND DAY ADJUSTMENTS ON AN UNFINISHED FIELD

1. Set up the tripod and bring the machine in working position.
2. If the leveling has a slope, then the tripod should be set up at the same spot until the leveling completely finishes. Location of the tripod is insignificant during zero slope operations.
3. Leveling machine should be moved to a spot where the leveling operations completed and blade of the bucket should be lowered from the control box manually in a position tangent to the field as in the topographic survey
4. Catch up the green light over the receiver mounted on the mast.
5. Switch the control box to automatic mode and move 3 to 4 meters. Blade should not cut any field during this operation and not move higher from the field level. It also needs to move tangent to the field as described previously. If it cuts the soil or goes above the level, then the machine should be readjusted.
6. Switch the control box to the automatic mode after the completion of the mast adjustment and continue leveling of unfinished parts of the field.
7. In case the tripod and/or mast settings are changed or disturbed, those adjustments are needed to be made once again.

Surface leveling at Steeper Terrains without changing the Grading

The standard (normal) leveling is conducted through determining slope on the field. However, adjusting the slope according to field is made on laser transmitter via calculating the existing slope of the terrain. This type of leveling can also be conducted on both sides.

Calculating the existing slope of the terrain Arazinin mevcut eğiminin hesaplanması:

Field length is measured in the direction of inclination. It can be done via any means of measurement or via below:

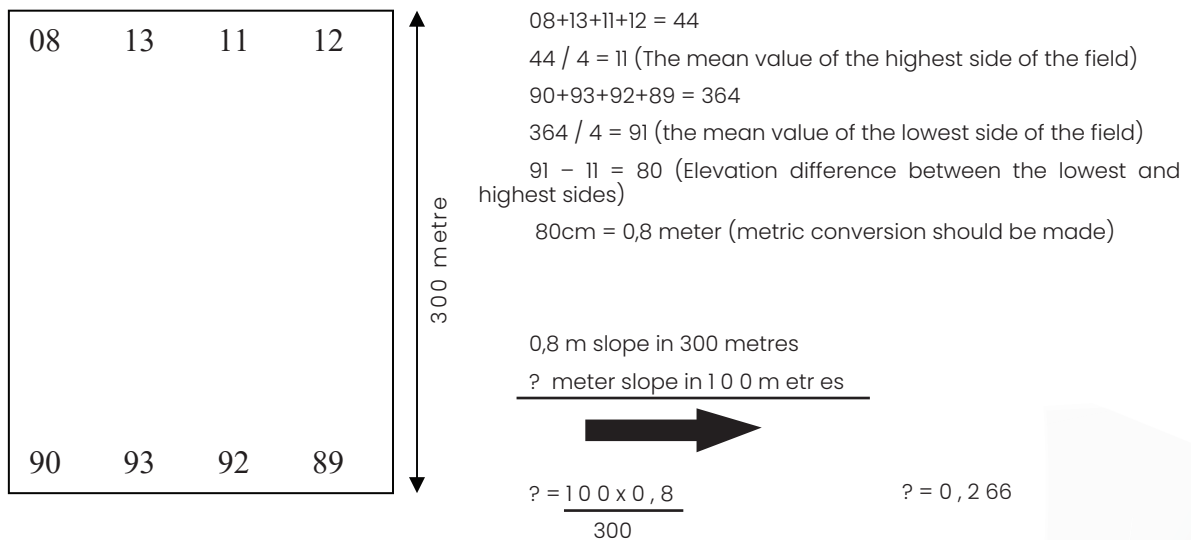
The perimeter of a back tyre of the tractor is calculated and a point on the tyre is marked. While doing so, tractor moves slowly end-to-end in the field and the rotation of the tyre is counted. The number of rotations is multiplied by the perimeter of tyre which gives the length of the field.

Tripod is set up in a suitable spot in the field. Laser transmitter's grade settings are adjusted as zero slope (no inclination) and the tripod is raised to a sufficient height.



Measurement is conducted starting from the top of the field to the other end with 20 to 25 meters distances and mean value is calculated. Likewise, measuring the mean value is calculated starting from the bottom of field to the other end. The difference between the mean values is the height difference of the terrain from bottom to top. Taking into the length of the field consideration, the slope of the terrain is calculated with % (percentage). The result is recorded to the right digit on the laser transmitter's screen.

Survey of the field can be initiated following the adjustment of laser receiver according to the calculated slope. The initial measurements are recorded on the grid map sketched on a piece of paper. The mean value (arithmetical average) of those numbers is calculated. The mean value of those numbers is the number for mast adjustment. Mast is adjusted according to the mean value and leveling is ready to start.



Slope of the field is approximately 0,266 % . Accordingly, enter the value on laser transmitter's screen;
 X:00.266

Y:00.000

So that the machine can be operated on X axis.

or; enter the values X:00.000

Y:00.266

So that the machine can be operated on Y- axis.

The initial survey should be conducted after the grade settings of the laser transmitter is completed and the leveling operation should be maintained similar to the work in the normal fields.(See Initial Survey)

DISMOUNTING THE MACHINE (TRANSFORMING THE LEVELER FROM WORKING POSITION TO TRANSPORT POSITION)

1. Unplug the safety pins of the scraper wings (bucket wings)
2. Raise the machine to the highest possible level.
3. Hold down the hydraulic pump pistons to fold the wings and to close the tyre system and take off the mast to the lowest level.
4. Stop the PTO shaft.
5. Turn the control box off.



TROUBLESHOOTING

IF One Side of the Blade digging more than the other side;



Picture 4

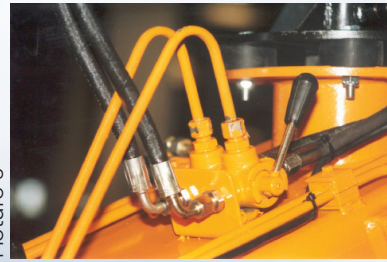
Move the leveler machine to an even and smooth place, raise the blade about 10-15 cm above the ground. Measure the height of the blade from left and right end points, if the heights are different, make the necessary adjustment (lengthen or shorten) by turning the rod on the right tire set till the heights are same as shown in the Picture 4. The two sides of the blade should be same upon adjustment.

If the valve control handle is positioned as in the picture 5, then oil pressure affects the mast piston which means mast piston is active and the mast can be lifted/ pulled down. If the valve control arm is positioned as in the picture 6, then oil pressure affects the left tire rod which means tire piston is active and left tire can be raised or lowered which allows the bucket stand in upright or inclined position.

Picture 5



Picture 6



PROBLEM	REASON	SOLUTION
Bucket cannot be moved up/down	Transmitter is not running	Make sure that the laser transmitter is running properly
	Solenoid valve connections are incorrect or not plugged properly	Control the electric plugs and connections of the solenoid valve
	PTO Shaft is not running	Make sure that the PTO Shaft is in working position.
	Oil pressure is low	Control and raise the level of oil pressure to a sufficient level
	Oil flow is blocked	Detect and unblock the stuffed point of the oil flow system.
Leveler moves in only one direction (solely up or down)	Solenoid valve connections are incorrect or not plugged properly	Control the electric plugs and connections of the solenoid valve
	Oil flow is blocked	Detect and unblock the stuffed point of the oil flow system.
		Make sure that the electric plugs are connected properly
Leveled field is uneven	Travelling speed is high	Work slower than previous one
	Lifting and lowering speed is slow	Increase the pressure of the system
	Too much stones, weeds, crops and/residues on surface	Clean up the stones and residues and destroy the clogs
	Soil is too compacted	Solely work in the cut areas and fluff the soil (Chisel plough can be utilized)
Leveler does not respond automatically in certain parts of field	Line of vision between transmitter and receiver is blocked	There should be a visual clearance between Laser transmitter and receiver and need to see each other.
	Tractor cab intervenes between the receiver and transmitter	Raise the height of the tripod
	Out of the visual range of the transmitter	Do not move away from tripod more than 400 metres
	Operation area is too high or too low (i.e pit)	If it is higher, move while digging and cutting from a side; if it is lower, fill and move from a side of the area.
Soil is not flowing out of the Leveler's bucket	Too much stones, weeds, crops and/residues on surface	Clean up the stones and residues and destroy the clogs
	Soil is too wet	Work while the mellowness of the soil is ready
Soil cannot be digged in the cutting area	Cutting point of the field is too high	move while digging and cutting from a side in small amounts
	soil is too compacted	only the cutting area should be fluffed.
One side of the blade digging the ground more than the other	Check whether tyre pressures are equal	Make all tyre pressures equal
	Tyre rod adjustment is defected	Tyre rods should be re-adjusted as prescribed.
Mast is not moving towards up or down	Hydraulic connections are incorrect	Connections should be controlled whether plugged properly
	Mast valve control handle is in wrong position	Valve should be re-adjusted as prescribed in Picture 5
	Hydraulic oil outflow pressure of tractor is low or oil is lacking	Apply to a tractor repair service
	Oil flow is blocked	Detect and unblock the stuffed point of the oil flow system.
While turnings, one side of the blade digging the ground more than the other	Turnings are sharper than normal	Make wider turns



MAINTENANCE

1. Before using the leveler, apply grease to the required points.
2. Check tyre pressures and make sure that all tyre pressures are same.
3. Before using the leveler, check pump transmission oil level and add enough oil no. 85-140, if it is needed or lacking.
4. If the leveler is not to be used for a long time, it is highly recommended to apply grease or protective solvents on the surfaces of the blade and the scraper to avoid rusting.
5. After each working, clean the mud stick on the leveler.
6. After each working, tighten the bolts and nuts on the leveler, and replace the missing ones with the originals.
7. Check the oil level in the tank and change the oil filter after each 3000 hours working. Lacking oil should be compensated by Tellus 68 or an equivalent type and quality of oil.
8. Check the moving bearings and the parts that are contacting with the soil and detect the wearing parts and replace them with the original ALPLER brand.
9. Bolts and nuts should be fit into the holes while mounting and fixing.

TECHNICAL SPECIFICATIONS OF THE LASER CONTROLLED LEVELER MACHINE

Model	Axle System	Road Width (M)	Work Width (M)	Length (M)	Weight (KG)	Required Tractor Hydraulic Input	Power (HP)
LTM 250 A*	Fixed Axle	2,5	2,5	5,5	1800	4	70-90
LTM 300 A*		3	3	5,5	1950	4	90-110
LTM 300	Telescopic Axle	2,5	3	6	2200	6	90-110
LTM 350		2,5	3,5	6	2300	6	100-110
LTM 400		2,5	4	6	2350	6	110-120
LTM 450		3	4,5	6	2450	6	110-135
LTM 500		3	5	6,5	3100	6	135-160
LTM 550		3	5,5	6,5	3150	6	160-180
LTM 600		3	6	6,5	3200	6	180-200
LTM 350	Octopus Axle	2,5	3,5	6	2500	6	100-110
LTM 400		2,5	4	6	2600	6	110-120
LTM 450		3	4,5	6	2680	6	110-135
LTM 500		3	5	6,5	3250	6	135-160
LTM 550		3	5,5	6,5	3300	6	160-180
LTM 600		3	6	6,5	3400	6	180-200



LASER TECHNICAL SPECIFICATIONS

WORKING RANGE	400 mt.
ACCURACY	5mm/100mt
AUTOMATIC LEVELING RANGE	$\pm 18\%$ ($\pm 10^\circ$)
GRADE ADJUSTMENT RANGE X-AXIS	From -10% To $+12\%$
GRADE ADJUSTMENT RANGE Y-AXIS	From -10% To $+10\%$
ROTATIONAL SPEED	From 0 To 900 rpm
LASER/OPTICS	VD
DIODE	635 nm
MAXIMUM OUTPUT	<5mW
BEAM DIAMMETER	12 mm
LASER CLASS	CLASS 3 A
OPTICS AND WINDOWS ARE AR COATED	
BATTERY	7.2 V Makita™ type 1.4 Ah
FULL CHARGE	LESS THAN ONE HOUR
APROXIMATE OPERATING TIME	20 HOURS
WATER RESISTANT	YES (IP68 Standart protection)
DIMENSIONS	17x17x24 cm
WEIGHT	5 Kgs.



Keep the Production year, Model and Serial number of your product. You will be asked to state such information in detail when you contact to your dealer for any of your spare part orders and service consultations.

All ALPLER products are attached with an identification plate (ID Plate), in which the information about the product is written on. When ordering spare parts, complete model code and serial number must be stated to avoid mistakes, this is also essential to overcome misunderstandings regarding service consultations. Please enter the codes and information on the plate to the below table, so that it is always available, right after the implement is delivered.











When a spare part needed, use only ALPLER genuine spare parts. After-market spare parts negatively affect the function of the implement, may lead to a shorter lifetime, impair the quality of the implement and permanent damages on the implement. Damages caused by using spurious parts while replacing standard parts and making unauthorized modifications over the implement exclude ALPLER's warranty and sole liability belongs to the user for such actions. For service consultations and spare parts, please contact your local authorized dealer. All parts of the implement are under ALPLER's guarantee, replacing defect parts caused from manufacturing, material or montage includes replacing with the new one or repairing the damaged part. There is no obligation to replace the defective part, in case repair is possible.

According to Alpler's continuous development policy, we reserve the right to make changes in design and/or add new features to the implement without prior notice. Hence, Alpler bears no responsibility in any mistyping, misreporting or any kind of misinformation regarding the production year, serial number and model no. of the implement while ordering any of your spare part needs.



ALPLER



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