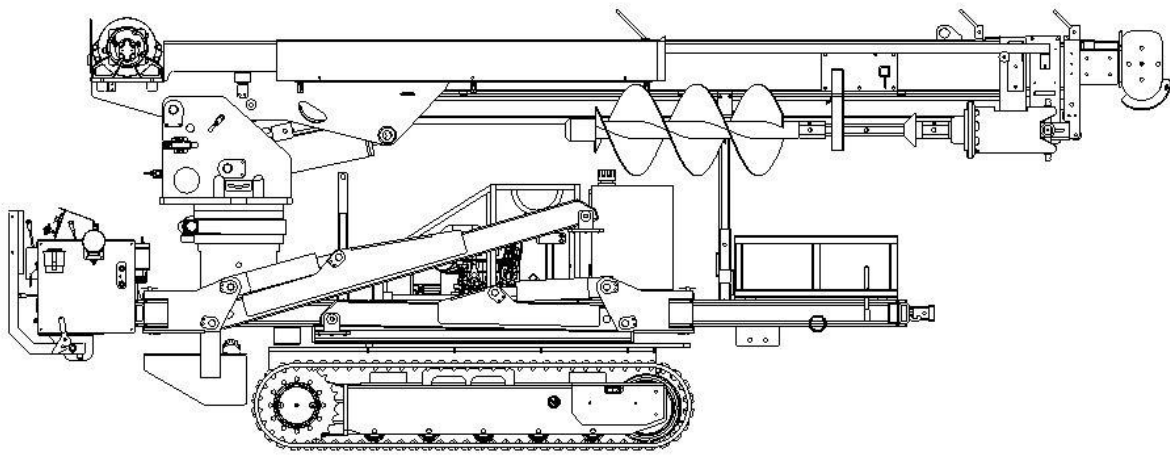




# Mini-Derrick Super 6000 Low Pro

## Operations Manual



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## Preface

### Purpose

The purpose of this manual is to provide information pertaining to the operation and standard safety practices of the Skylift Mini-Derrick Super 6000 LP.

### Introduction

This manual is intended for authorized personnel and users who have experience with Skylift equipment. It is assumed that the personnel possessing this document has the knowledge and background to use the Skylift Mini-Derrick Super 6000 LP. It is your responsibility to read and understand this manual before operating the Skylift Mini-Derrick Super 6000 LP.

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## General Safety/Operation Guidelines

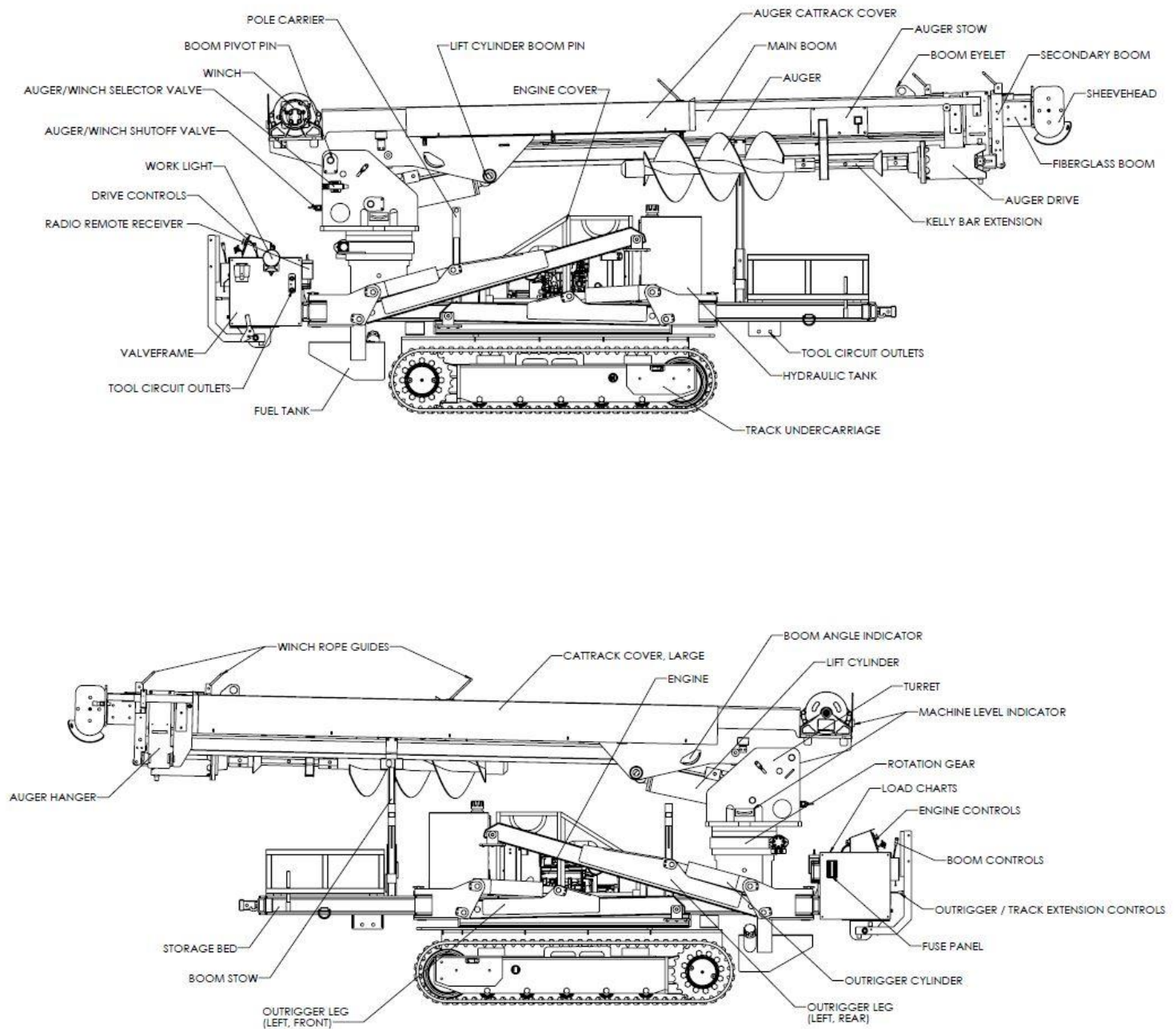
The following instructions are to be followed for proper operation of your Skylift Super 6000 LP. These instructions are general guidelines to the operation of the machine. Skylift Inc. recommends any operators to be trained prior to operating the machine. Training can be arranged through your distributor or directly through Skylift Inc.

- Skylift has no direct control over machine application, operation, inspection, lubrication or maintenance. The use of the Skylift Super 6000 LP is subject to certain potential dangers that cannot be protected. Therefore, it is the operator's responsibility to use good safety practices in these areas.
- Modifications to this Skylift Super 6000 LP from the original design specifications without written consent from Skylift are strictly forbidden. Modifications may compromise the safety of the Skylift Super 6000 LP which could lead to serious injury or death. Any modifications will void Skylift factory warranty.
- Never exceed the rated load capacity of the Skylift Super 6000 LP. Know the weight of the object that is to be handled. Stay within work zones shown on the load charts.
- Do not operate the Skylift Super 6000 LP if any interlock or safety device is malfunctioning or has been tampered with.
- Do not operate the Skylift Super 6000 LP if it is not functioning properly, making unusual noises or if there are any fluid leaks.
- Perform all daily and scheduled maintenance.
- Do not use winch line to hoist pole. Use proper strap or chain.
- Never pull poles. Always use a pole jack. Severe damage will occur if you pull poles.
- Never put a side load onto the machine. Maneuver boom assembly over object that is to be lifted.
- Use designated tie down points on machine and trailer. Use straps and winches provided with machine.
- Don't leave attachments on sheave head while transporting machine. Always store attachments in correct location.

## General Safety/Operation Guidelines



- Inspect winch line daily. Never tie winch line together.
- Hydraulic Overload Protection (HOP) is not to be continuously reset. This means the machine is overloaded.
- Never operate boom assembly on trailer.
- Don't extend fiberglass boom and lift a load if secondary steel boom is able to reach the load.
- Boom stows and pole carriers are to be removed before boom operation.
- Use provided pins for all pinning locations. Bolts with threads contacting any fiberglass or other pinned surface may damage the component. This will not be covered under warranty.
- Do not use dual bucket arm with only one bucket attached to it.
- When using the material handling jib, move winch OUTSIDE of winch line guides on the boom assembly.
- Short, underslung jib arm is to be used only with the can handler attachment.
- Remove bucket arm attachment BEFORE unstrapping bucket from trailer.
- Do not stand in front of auger when stowing or un-stowing the auger.
- Remove auger strap before extending boom #2.
- Do not walk beneath hoisted loads.
- Winch lines does not automatically pay out when booms are extended.

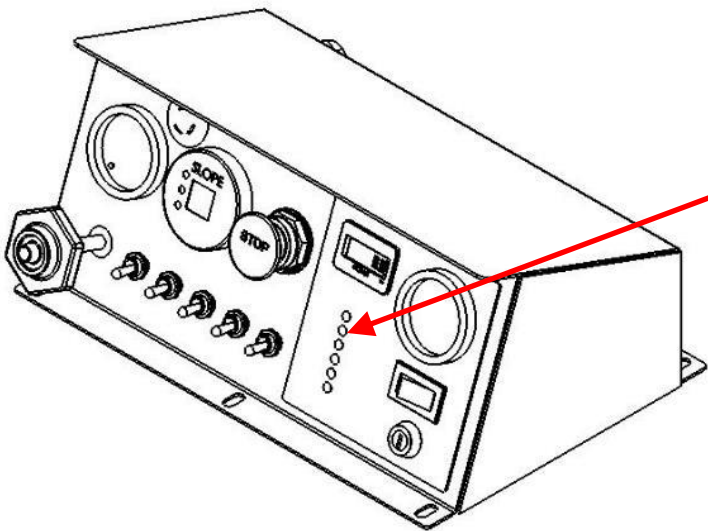
## Machine Component Identification



## Starting Instructions

Before starting your Skylift Super 6000 LP preform all the periodic inspections and lubrications according to the maintenance manual. Perform the following steps to start your machine properly.

1. Preheat engine if working in colder temperatures or if the machine has not been started for the day.
  - a. To preheat engine, turn ignition key to the “RUN” position and wait for the preheat light (  YELLOW LIGHT) to go off.
2. Once ( ) preheat light goes off, crank engine by turning the ignition key to the “START” position.
3. Let engine run 3-5 minutes before operation.



Arrow points to where the preheat light is located on the engine control panel.

## Unloading Machine from Trailer Instructions

Before unloading your Skylift Super 6000 LP from its trailer, survey the area to which the machine will be unloaded to. Make sure the area is clear from obstructions. Keep trailer hitched to vehicle when unloading to prevent unwanted trailer movement. Perform the following steps to ensure the proper unloading technique.

1. Make sure towing vehicle is placed into “PARK”.
2. Chock trailer wheels to prevent unwanted trailer movement.
3. Unpin loading ramps and ensure they are pushed to the most inward position of the trailer ramp sliding bar.
4. Lower loading ramps to the ground.
5. Unstrap unit from trailer with provided winch bar.
6. Start engine of machine.
  - a. ENSURE UNDERCARRIAGE TRACKS ARE FULLY EXTENDED BEFORE ANY TYPE OF TRAVEL. Failure to comply with this statement may result in serious injury or death. Tracks are only to be retracted when going through a narrow gate. Warning beeper will sound if tracks are not fully extended. Again, ALWAYS travel with tracks fully extended.
  - b. ENSURE BOOM IS FULLY RETRACTED AND IN THE STOWED POSITION WHILE TRAVELING. Failure to comply with this statement may result in serious injury or death. Boom is only supposed to be out of stow when all outriggers are deployed.
7. Put machine into “LOW” speed travel mode. There is a rocker switch on the engine control panel that is labeled “LOW” and “HIGH”.
  - a. Skylift Inc. recommends that the machine be placed into “LOW” speed travel mode when loading and unloading the machine from the trailer.
8. Place machine into “DRIVE Controls” mode. There is a selector valve located on the front side of the valve frame assembly. This selector valve has 2 positions, “DRIVE Controls” and “BOOM Controls”.
9. Cautiously back machine over loading ramps by exercising the machine drive controls. The machine drive controls are located to the right of the engine control panel. The left handle controls the left-side drive and the right handle controls the right-side drive. Exercising the handle forward (towards front of machine) or backwards will drive the machine in that direction.
10. Drive machine to level surface.
11. Proceed to jobsite location.

## Loading Machine onto Trailer Instructions

Before loading your Skylift Super 6000 LP onto its trailer, survey the area to which the machine will be driven on. Make sure the area is clear from obstructions. Keep trailer hitched to vehicle when loading to prevent unwanted trailer movement. Perform the following steps to ensure the proper loading technique.

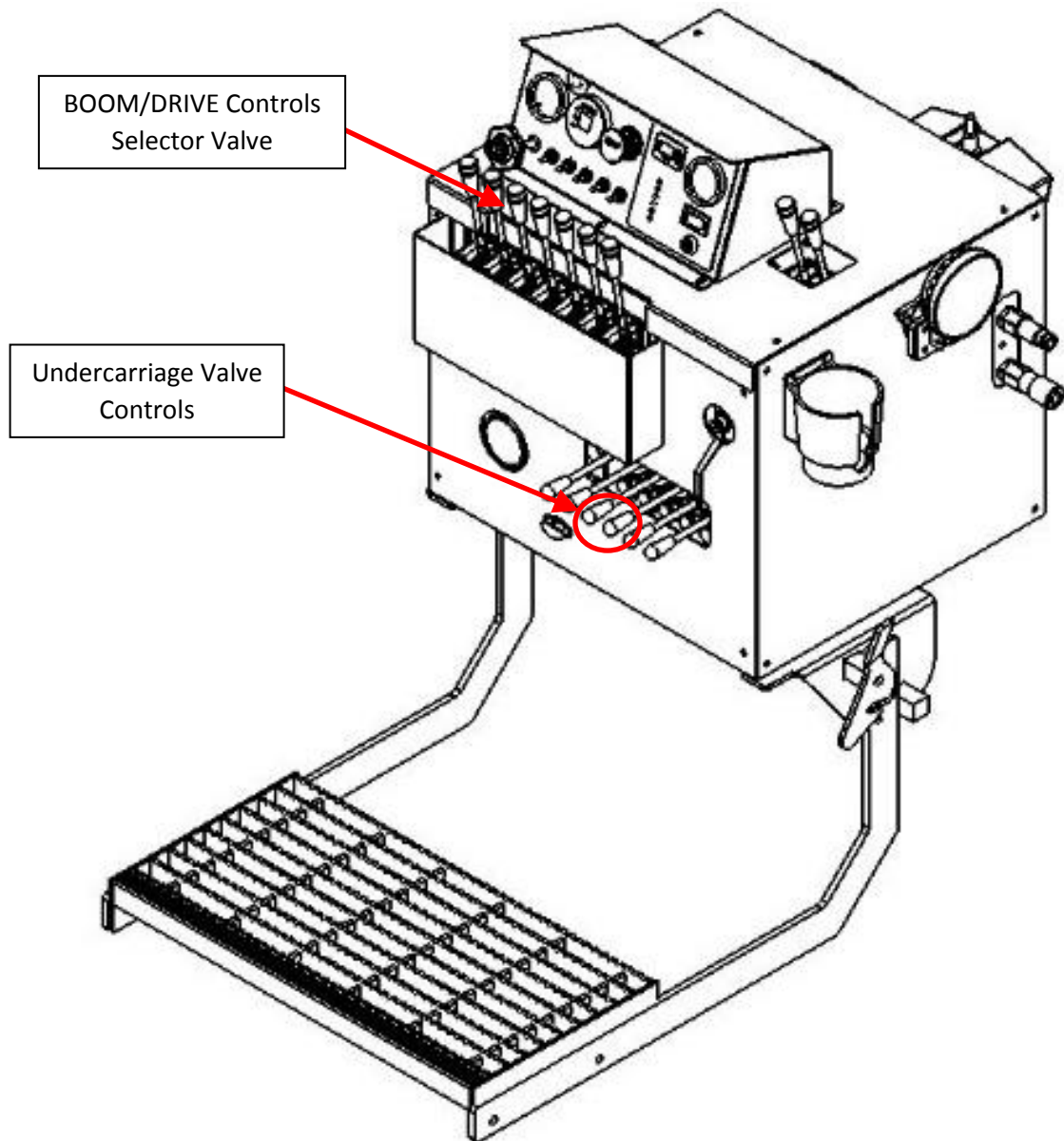
1. Make sure towing vehicle is placed into “PARK”.
2. Chock trailer wheels to prevent unwanted trailer movement.
3. Unpin loading ramps and ensure they are pushed to the most inward position of the trailer ramp sliding bar.
4. Lower loading ramps to the ground.
5. ENSURE MACHINE’S UNDERCARRIAGE TRACKS ARE FULLY EXTENDED BEFORE ANY TYPE OF TRAVEL. Failure to comply with this statement may result in serious injury or death. Tracks are only to be retracted when going through a narrow gate. Warning beeper will sound if tracks are not fully extended. Again, ALWAYS travel with tracks fully extended.
6. Put machine into “LOW” speed travel mode. There is a rocker switch on the engine control panel that is labeled “LOW” and “HIGH”.
  - a. Skylift Inc. recommends that the machine be placed into “LOW” speed travel mode when loading and unloading the machine from the trailer.
7. Place machine into “DRIVE Controls” mode. There is a selector valve located on the front side of the valve frame assembly. This selector valve has 2 positions, “DRIVE Controls” and “BOOM Controls”.
8. Cautiously drive machine over loading ramps by exercising the machine drive controls. The machine drive controls are located to the right of the engine control panel. The left handle controls the left-side drive and the right handle controls the right-side drive. Exercising the handle forward (towards front of machine) or backwards will drive the machine in that direction.
9. Drive machine onto trailer until track undercarriage comes in contact with track stop located on the trailer. This track stop is positioned for the correct tongue weight of the trailer. Moving this track stop will alter the tongue weight of the trailer thus hindering trailer stability. DO NOT MOVE track stop.
10. Turn machine engine off.
11. Strap machine down to it’s trailer before transporting your Skylift Super 6000 LP.



## Undercarriage Track Extension/Retraction

The undercarriage of the Skylift Super 6000 LP has the ability to hydraulically extend and retract. This ability will either make your track undercarriage wider or narrower depending on the direction you choose. Undercarriage tracks should ALWAYS stay in the most extended configuration unless you are traveling through a narrow gate. ALWAYS have your tracks extended when loading and unloading the machine from its trailer. NEVER travel with machine's tracks retracted when there is sufficient room to have them extended. There are two proximity sensors on the track undercarriage that monitor the tracks orientation. An alarm will sound when the tracks are not in the most extended position. This warns the operator that the tracks are not extended. Perform the following steps to extend or retract the track undercarriage.

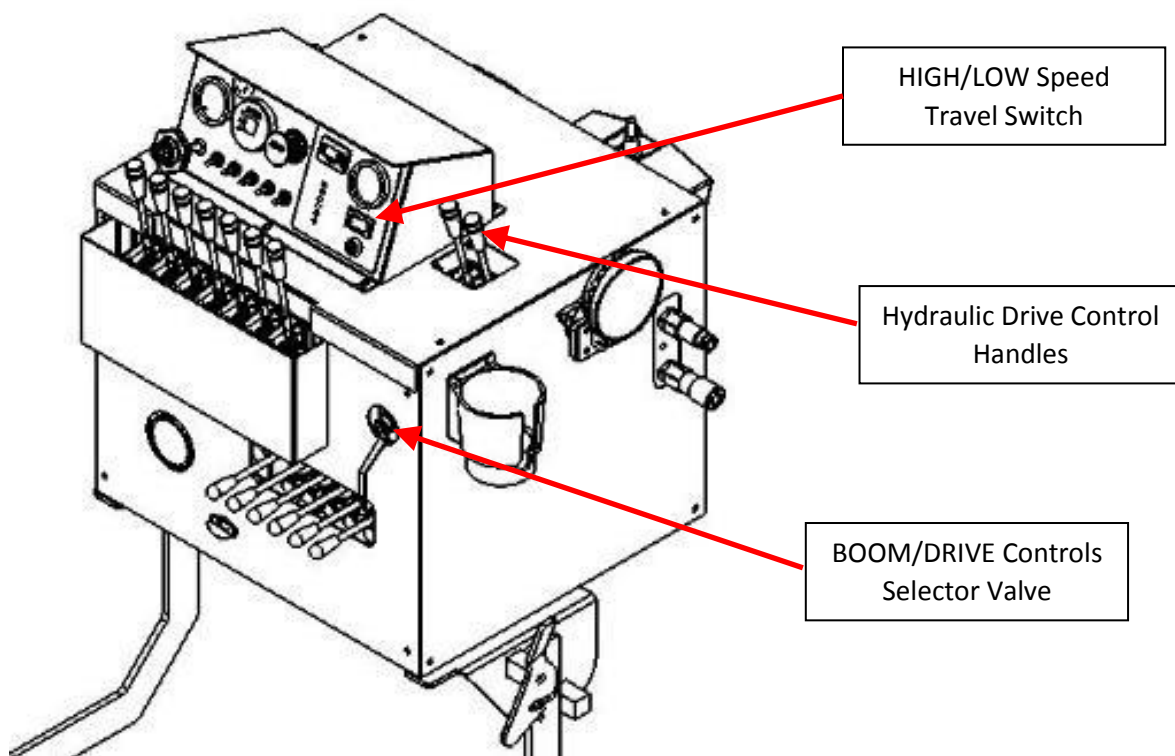
1. Make sure that the Skylift Super 6000 LP is on a level, safe work area.
2. Start the Skylift Super 6000 LP and let the machine idle for a few minutes.
3. Place machine into "DRIVE Controls" mode. This is done by exercising the "BOOM/DRIVE Controls" selector valve to the "DRIVE Controls" label. This selector valve is located on the rear of the valve frame assembly, on the right-hand side. See diagram below for reference.
4. Once the Skylift Super 6000 LP is started, in "DRIVE Controls" mode, you are able to extend or retract the undercarriage. To extend the undercarriage, exercise the undercarriage's hydraulic valve handle in the down direction. To retract the undercarriage, exercise the undercarriage's hydraulic valve handle in the up direction.
  - a. The undercarriage's hydraulic valve controls are located at the rear of the valve frame assembly, in the middle. These controls are located on the "Outrigger/Track Extension Valve." Undercarriage valve controls are NOT located with the boom controls. The two handles that control the undercarriage are the two middle handles out of the six handles available. The left-middle handle controls the left side of the undercarriage. The right-middle handle controls the right side of the undercarriage.
  - b. The terrain that the machine is riding on will determine how easily the tracks will move. Certain terrains make it more difficult to extend/retract the undercarriage. If machine is not able to retract/extend the undercarriage, deploy the outriggers and raise the machine off the ground. Then extend/retract your undercarriage.



## Machine Travel, Turning and Throttle Control

### HIGH/LOW SPEED TRAVEL

The Skylift Super 6000 LP has the ability to travel on various terrain types via its hydraulically driven undercarriage. The track undercarriage provides a “HIGH” and “LOW” speed. The “LOW” speed should be used when unloading/loading the machine onto a trailer, turning or navigating over uneven terrain. The “HIGH” speed should be used when there is ample amount of room for the machine and the terrain is level. The operator is able to switch from “HIGH” to “LOW” speed via a switch on the control panel. The control panel is located on top of the valve frame assembly at the rear of the machine. See picture below for reference.



### TURNING

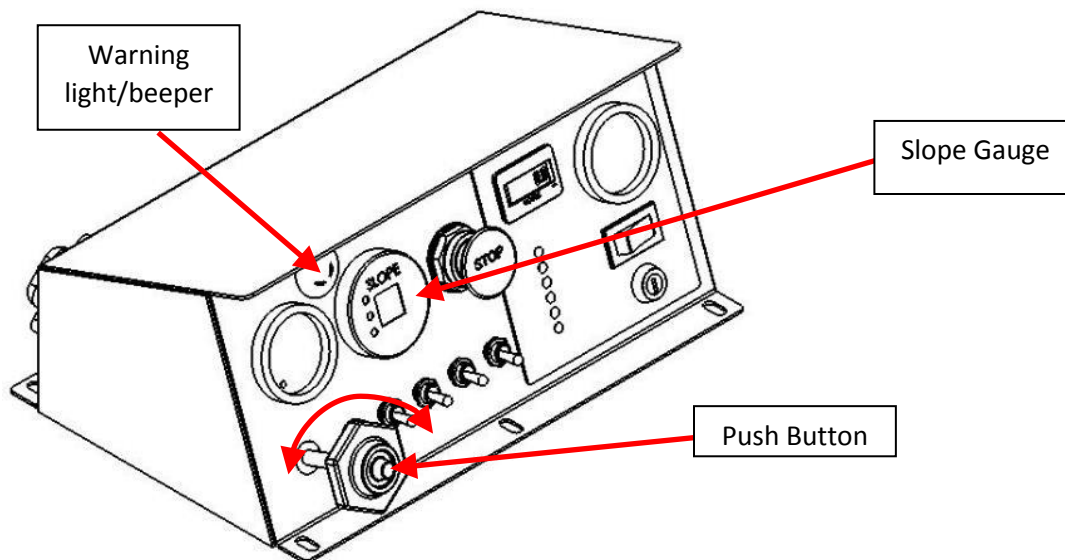
The Skylift Super 6000 LP has a traditional “skid steer” type of steering where the left track is controlled by one hydraulic handle and the right track is controlled by another hydraulic handle. To go forward, in a straight line, both hydraulic handles are to be pushed forward, simultaneously. To go in reverse, in a straight line, both hydraulic handles are to be pulled back, simultaneously. To steer the machine left, the right hydraulic handle must be pushed forward. To steer the machine right, the left hydraulic handle must be pushed forward. This steering configuration is very similar to standard skid steer or zero-turn lawn mowers. The engine must be running and the “BOOM/DRIVE Controls” selector must be on “DRIVE.” See picture above for reference to where the hydraulic handles are for the drive controls.

## Machine Travel, Turning and Throttle Control (cont.)

### THROTTLE CONTROL

The Skylift Super 6000 LP has an adjustable throttle control. This is used to adjust the engine RPMs per customer needs. Some operations/tasks are easier with a lower engine RPM while other operations/tasks are easier with a higher engine RPM. This is all based on the operator skill level. Skylift Inc. recommends that the throttle be set to half, 1,200 RPM, when using the tool circuit function.

To increase engine RPM, turn the throttle control knob counterclockwise. To decrease engine RPM, turn the control knob clockwise. There is also a push button in the center of the knob that lets the operator engage the button and push/pull the knob to adjust engine RPM. Max engine RPM is when the knob is all the way out. Machine idle is with the knob all the way in. See picture below for reference where the adjustable throttle control is located.



### SLOPE GAUGE

Skylift Inc. warns operators to always be alert when operating a Skylift Super 6000 LP. Know what obstacles are around you at all times. The Skylift Super 6000 LP is equipped with analog angle indicators as well as a digital slope gauge. This digital slope gauge is located on the operator panel. The slope gauge measures your fore and aft as well as side to side slope. If the Skylift Super 6000 LP approaches the machine's max slope limit for operation, a warning light will begin to flash on the operator panel. When the machine reaches the max slope limit, an audible alarm will sound off as well as the warning light. See picture above for reference to where the slope gauge and the warning light are. If the slope alarm is going off, stop what you are doing and evaluate what it will take to get the machine into a safe operating condition. Proceed with caution in getting the machine into a safe operating environment.

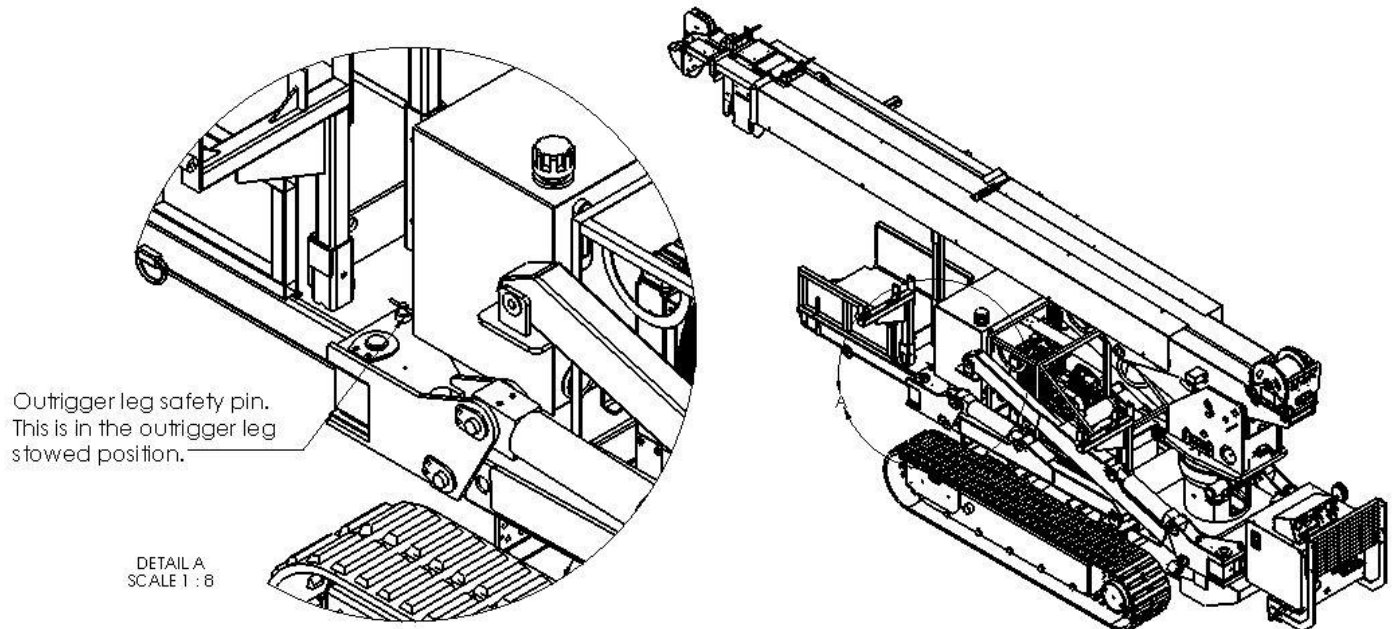
## Deploying Outriggers

The Skylift Super 6000 LP comes with four hydraulically driven outriggers standard on every machine. These outriggers are used for machine stability when operating the boom assembly. You should NEVER operate the boom assembly without the use of the outriggers. Failure to use outriggers properly can result in serious injury or death. The following instructions are how to deploy the outriggers. The instructions are assuming that the engine is running and the machine is in the working area.

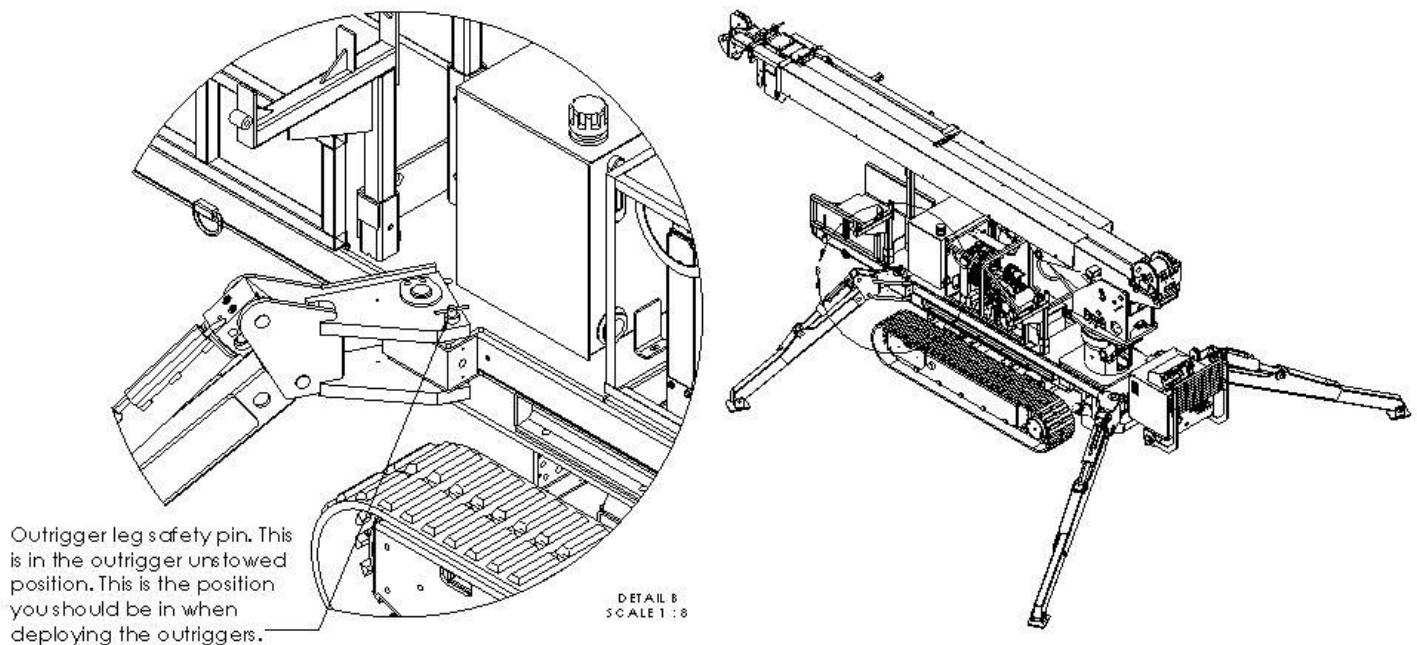
1. Ensure that the work area is clear of any obstructions.
2. Pull out outrigger leg safety pin from outrigger knuckle assembly. Swing open outrigger leg until safety pin hole on the outrigger knuckle assembly lines up with the other pin hole. There are only 2 safety pin holes available. One hole is used for pinning the outriggers in a stowed position. The other pin hole is used when outriggers are needed for boom function. See diagram on following page.
3. Insert outrigger leg safety pin into outrigger knuckle assembly and safety pin hole and ensure the pin is fully seated in place. See diagram on following page.
  - a. Outrigger safety pin MUST be inserted when using the outriggers. Failure to follow these instructions can lead to serious injury or death.
4. Continue to swing out and pin all four outrigger legs.
  - a. An amber light will light up on the rear of the valve frame assembly signifying that all outriggers have been swung out and pinned in the proper location.
5. Exercise hydraulic outrigger function handles to drive the outriggers down onto the ground.
  - a. Hydraulic outrigger function handles are located to the left and right of the track extension handles. These handles are on the back side of the valve frame assembly, in the middle. There should be six available handles. The first handle (going left to right) will be your left, rear outrigger control. The second handle will be your left, front outrigger control. The fifth handle will be your right, front outrigger control. The sixth handle will be your right, rear outrigger control.
  - b. If equipped with outrigger pads, place pads in approximate location of outrigger feet then drive outriggers down onto pads.
  - c. Always keep other personal clear of machine when deploying outriggers.
6. Drive outriggers into ground until machine is stable and level.
  - a. Skylift Inc. recommends that you keep the track undercarriage as low to the ground as possible while still putting the machine in a stable state, to increase stability.
  - b. Use the digital slope gauge to level out the machine. Skylift Inc. recommends to use the machine on the most level position possible.
  - c. Always keep other personal clear of machine when deploying outriggers.

## Deploying Outriggers (cont.)

Outrigger in it's stowed position:

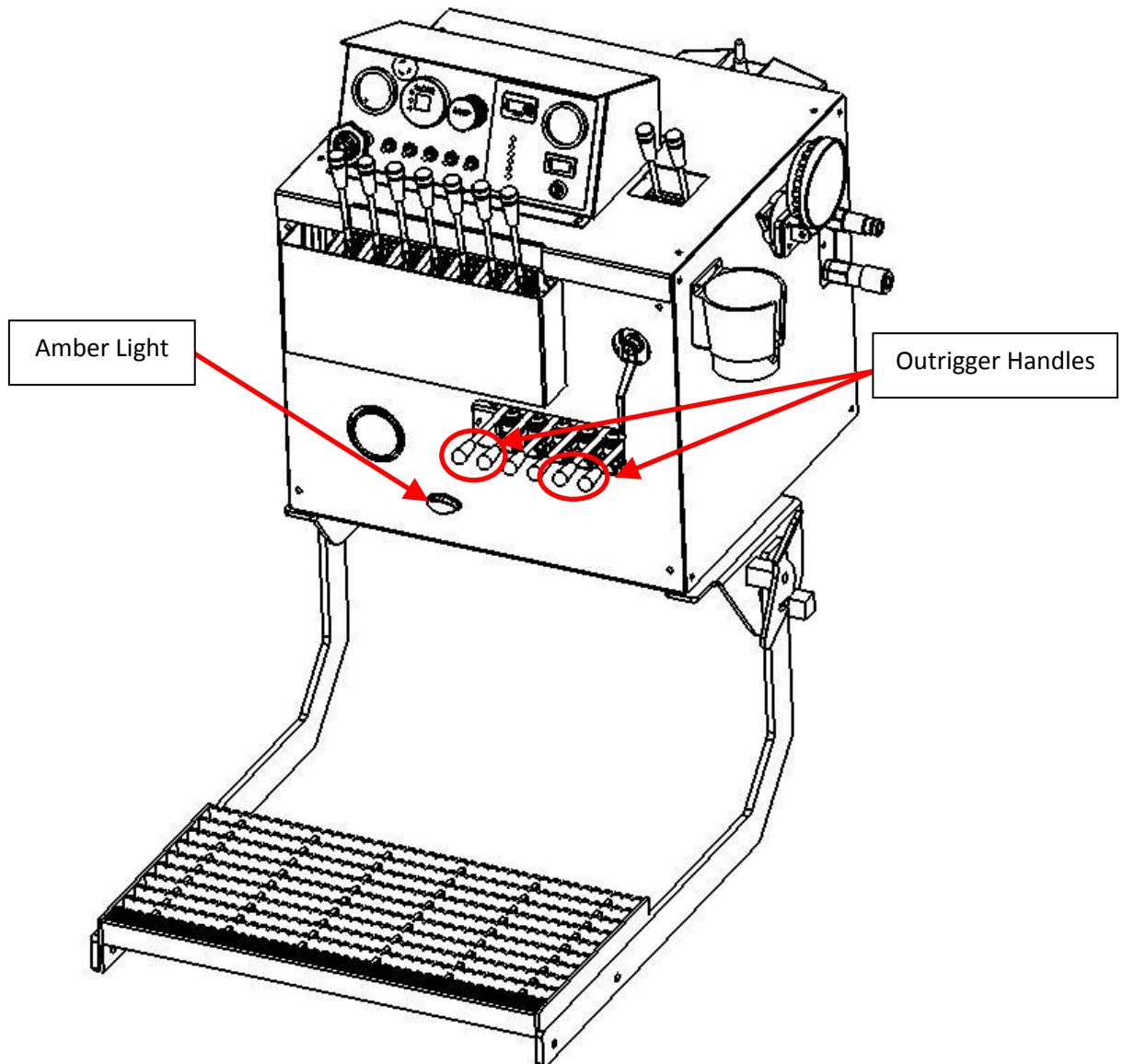


Outrigger in it's unstowed position:



## Deploying Outriggers (cont.)

Hydraulic outrigger handle and amber light location:



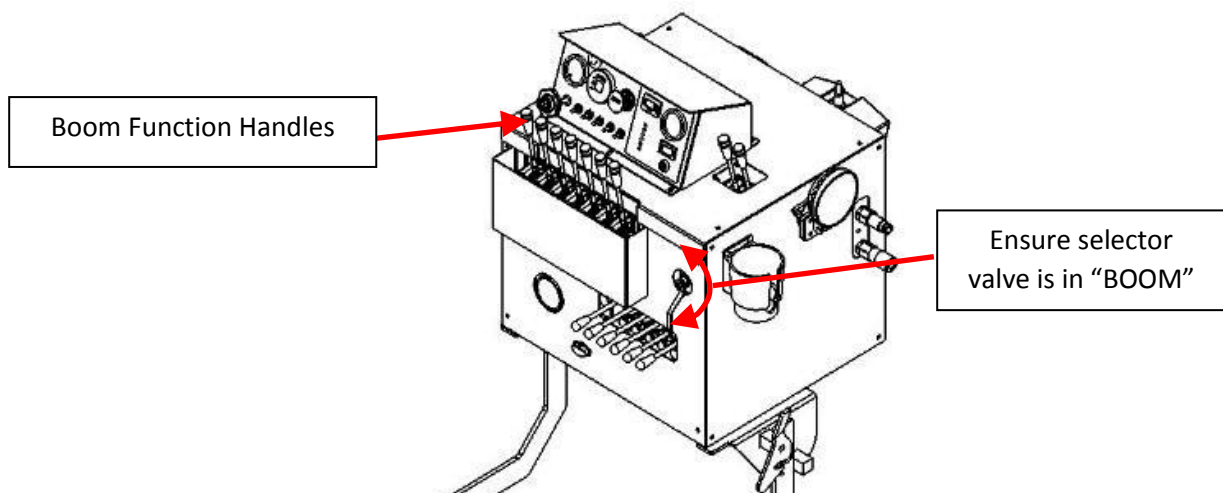


## Boom Operation/Controls

The Skylift Super 6000 LP is equipped with a 3 stage, hydraulic extension, boom assembly. These 3 sections vary from one another by size, working ability and material. Skylift Inc. is not going to tell you how to preform certain jobs, we are going to instruct you on how to get the machine to the point to where you can operate the boom and it's functions. Skylift Inc. highly recommends that any operator gets training on how to operate the Skylift Super 6000 LP prior to operation. Improper operation can lead to serious injury or death. The best defense against accidents is common sense. If you are ever in a situation where you don't know if it is safe or not, stop and contact a supervisor for further instruction. If you ever have a question on the machine's ability, contact either your distributor or Skylift Inc. directly. Skylift Inc. cannot stop you from using the machine how you want to, we can only recommend what to do and not to do. There are various safety devices that limit the machine's ability but in the end the operator is in full control. Skylift Inc. is not responsible for improperly maintained machinery, operator error or failure to follow local operation guidelines. Skylift Inc. provides the safest machinery possible, it is on the operator to continue with safe procedures during operation.

The Skylift Super 6000 LP comes standard with fully proportional, hydraulic boom controls. These controls are located at the rear of every machine. The following instructions are how to get the machine into "BOOM CONTROL" mode. Once in "BOOM CONTROL" mode, you are able to exercise the boom function handles. The following instructions are assuming the machine's engine is running.

1. Ensure that work area is clear of any obstructions.
2. Deploy machine outriggers and ensure machine is stable.
  - a. Outriggers must be used for any type of boom function.
3. Switch "BOOM/DRIVE Controls" selector to "BOOM".
  - a. Once selector is switched to "BOOM", you are unable to drive the machine or operate the outriggers.
4. From this point you are able to exercise the boom function handles.





## Boom Operation/Controls (cont.)

On the boom function valve, there are certain functions that serve a dual purpose or have different ways to activate them. Those sections are the tool circuit, jib/pole guide and auger/winch. Below are explanations on how to properly activate them.

## Hydraulic Tool Circuit

The hydraulic tool circuit function can be operated two ways:

1. Manually exercising the hydraulic handle on the boom operation valve.
2. Turning the “Tool Circuit” switch to on.
  - a. Once the switch is on, you will see the handle for the tool circuit actuate itself and stay actuated until the switch is turned off.

These instructions are assuming that the engine is running and the machine is in “BOOM Controls” mode. Skylift recommends that the tool circuit be used at half engine throttle. There are tool circuit outlets at the front of the machine, under the pad mount carrier deck and at the valve frame assembly. Both of these outlets face the curb side.

## Jib/Pole Guide

The Jib/Pole Guide function is the Skylift Super 6000 LP’s multi-use function. This function controls 4 different attachments. The following is what the function controls:

1. Material Handling Jib:
  - a. The Jib/Pole Guide function controls the tilt of the material handling jib. When using this attachment, you will be able to tilt the material handling jib up and down.
2. Can Handler:
  - a. The Jib/Pole Guide function controls the Can Handler’s winch. When using this attachment, you will be able to winch up and down.
3. Pole Claw:
  - a. The Jib/Pole Guide function controls the Pole Claw’s open and close function. When using this attachment, you will be able to open and close the pole claw.
4. Pole Claw Tilt:
  - a. The Jib/Pole Guide function controls the Pole Claw’s tilt function. To get this function to operate properly there are a few additional steps required. When this option is used, there will be a switch on the operator’s panel that is labeled “Pole Guide Tilt.” You must turn that switch ON prior to actuating the Jib/Pole Guide handle. If you don’t turn that switch on, the Pole Claws will just open and close. Once the switch is on, you are able to control the Pole Claw’s Tilt by actuating the handle. Once you get the Pole Claw into the desired position, turn the Pole

Guide Tilt switch to off. With the Pole Guide Tilt switch off, the Jib/Pole Guide function goes back to controlling the Pole Claw open and close.

## Auger/Winch

The Auger/Winch function on the Boom Function Valve is another dual-purpose section. This function either controls the auger's rotation/direction or the main boom winch's rotation/direction. The Auger/Winch function is controlled by the selector valve mounted on the right side of the machine's turret. Simply select auger to control the auger or select winch to control the main boom winch.

To operate auger, you must first un-stow it. Before un-stowing the auger, make sure boom #2 (yellow boom) is fully retracted. Damage will occur if boom #2 is not retracted before un-stowing the auger. Perform the following steps to un-stow the auger:

1. Raise auger (rotate auger drive) up enough so that the auger latch can be released to let down the auger.
2. Once the auger is raised up enough, pull on release cable that is located on the right side of the boom, towards the rear of the machine.
3. Unwind auger to the ground position.
4. Unhook auger strap from auger assembly.
5. You are now able to use your auger and extend boom #2 if need be.

Skylift Inc. recommends that you dig approximately 2-3 feet at a time and then clean auger flights. Never leave auger un-stowed when you are not using it. When using the auger, make sure the main winch line is hooked to the eyelet located at the front, top of the main boom assembly.

There is a shut off valve located on the backside of the machine's turret that is labeled "Auger/Winch Shut Off Valve." This shut off valve is an added safety feature for the operator. Whenever the operator is in the man bucket attached to the boom assembly, the "Auger/Winch Shut off Valve" should be placed in the "Bucket Operation" position. This will disable the Auger/Winch function until the selector valve is switched back to boom operation. This safety feature is added so when the operator is in the bucket, they are unable to use the main boom winch or auger function.

## Rotation Stop Information

The Skylift Super 6000 LP comes standard with a 440-degree work zone. When the boom assembly meets the rotation stop, you will notice that the rotation goes into a hydraulic relief state because there is no where else for it to rotate. Skylift Inc. recommends that you do not repeatedly meet the stop under full rotation load. Know your work-zone and work accordingly.

The Skylift Super 6000 LP does come with a continuous rotation option that makes the work-zone rotation unlimited. This will enable the operator to rotate the boom without limitation.

## Accessory Instructions

The Skylift Super 6000 LP has a vast selection of accessories that you are able to add to the machine. The following are a few quick instructions on how to operate them. If you have a question about a certain option or have an issue, contact Skylift Inc. and talk to a representative.

### Wireless Radio Remote

The Skylift Super 6000 LP has an option to have a wireless, radio remote control. This remote allows the operator to control the drive and boom functions. The approximate range of the remote to machine is 1,000 feet. There is an included tether cord if your remote battery dies and you do not have a spare battery. Radio remote has the ability to be customized per customer specifications and layout. Please refer to the Scanreco Remote Control Operation Instructions on how to operate the remote. If you have any questions about the function of the remote or have an issue, please contact a Skylift Inc. representative.

### Electric Recovery Winch

The Skylift Super 6000 LP has an option to have an electric recovery winch. When this option is ordered, you will be able to mount the electric winch to either the front of the machine or the rear of the machine. There is a reinforced socket assembly at the rear of the machine when this option is ordered. This winch will allow the operator to have the machine in drive and use the winch simultaneously. Extreme caution must be used when this combination is in use. Skylift Inc. recommends that the machine's engine be running while using the electric recovery winch to ensure the battery doesn't die.

### Power Inverter

The Skylift Super 6000 LP has an option to have a 1,250 watt or 2,000 watt power inverter added to the machine. If the 2,000 watt inverter is added, an additional battery will be necessary as well. These power inverters will give you an AC power supply. Skylift Inc. recommends that the machine's engine be running while using the power inverter to ensure the battery doesn't die.

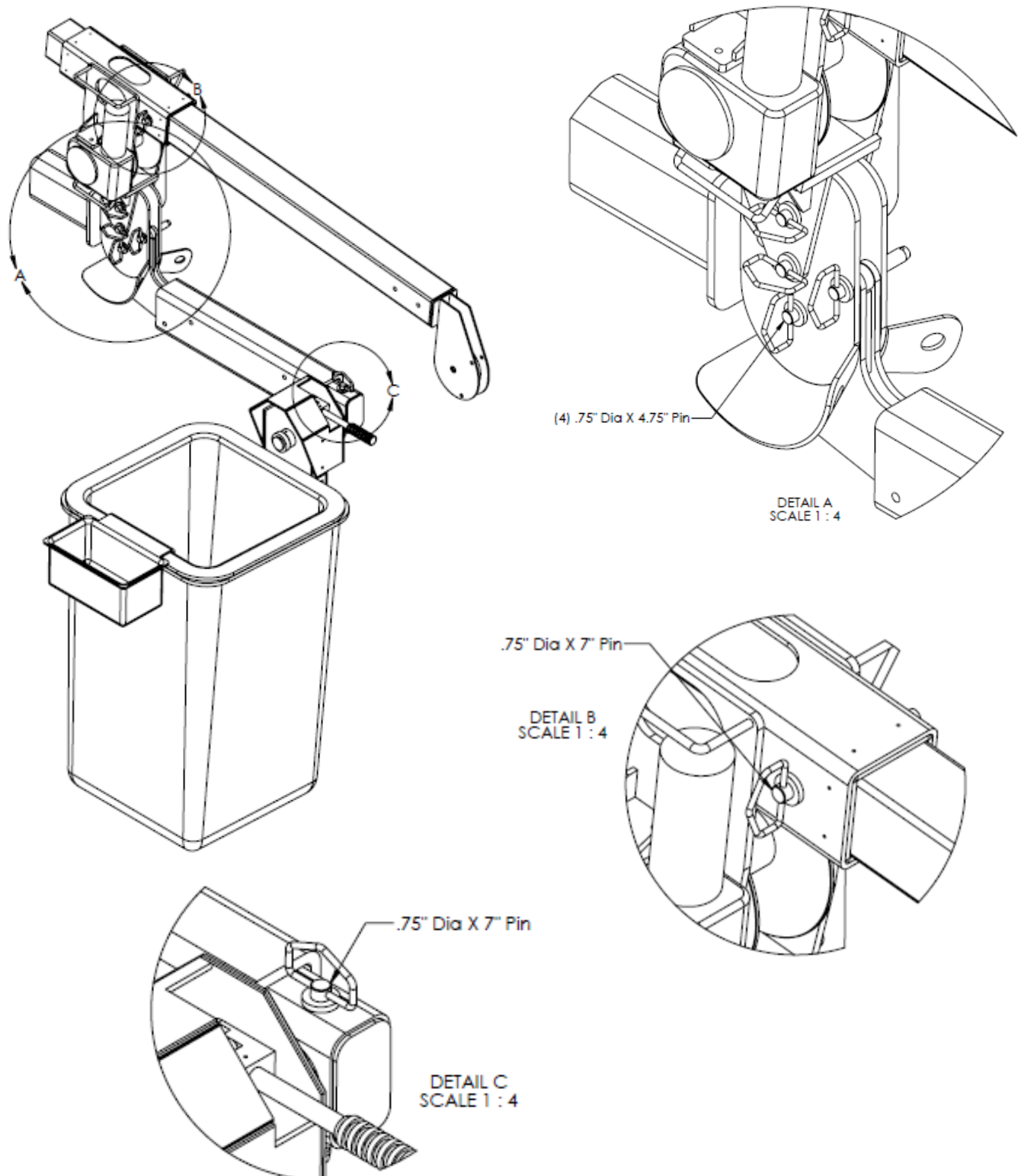
## Single & Dual Man Bucket Assemblies

The Skylift Super 6000 LP has the option to have a single or dual man bucket assembly attachment for the boom. This attachment is removable. This will give the ability to either lift 1 or 2 operators into the air with the boom assembly. Always attach lanyards prior to being raised into the air. Lanyards can be attached to the sheevehead. Skylift Inc. recommends to have the engine throttled down so the boom functions are easier to control. Also, remember to close the “Auger/Winch Shutoff Valve” to disable the auger/winch function completely when in the bucket. The main boom winch is not to be used when a single or dual bucket assembly is attached to the boom.

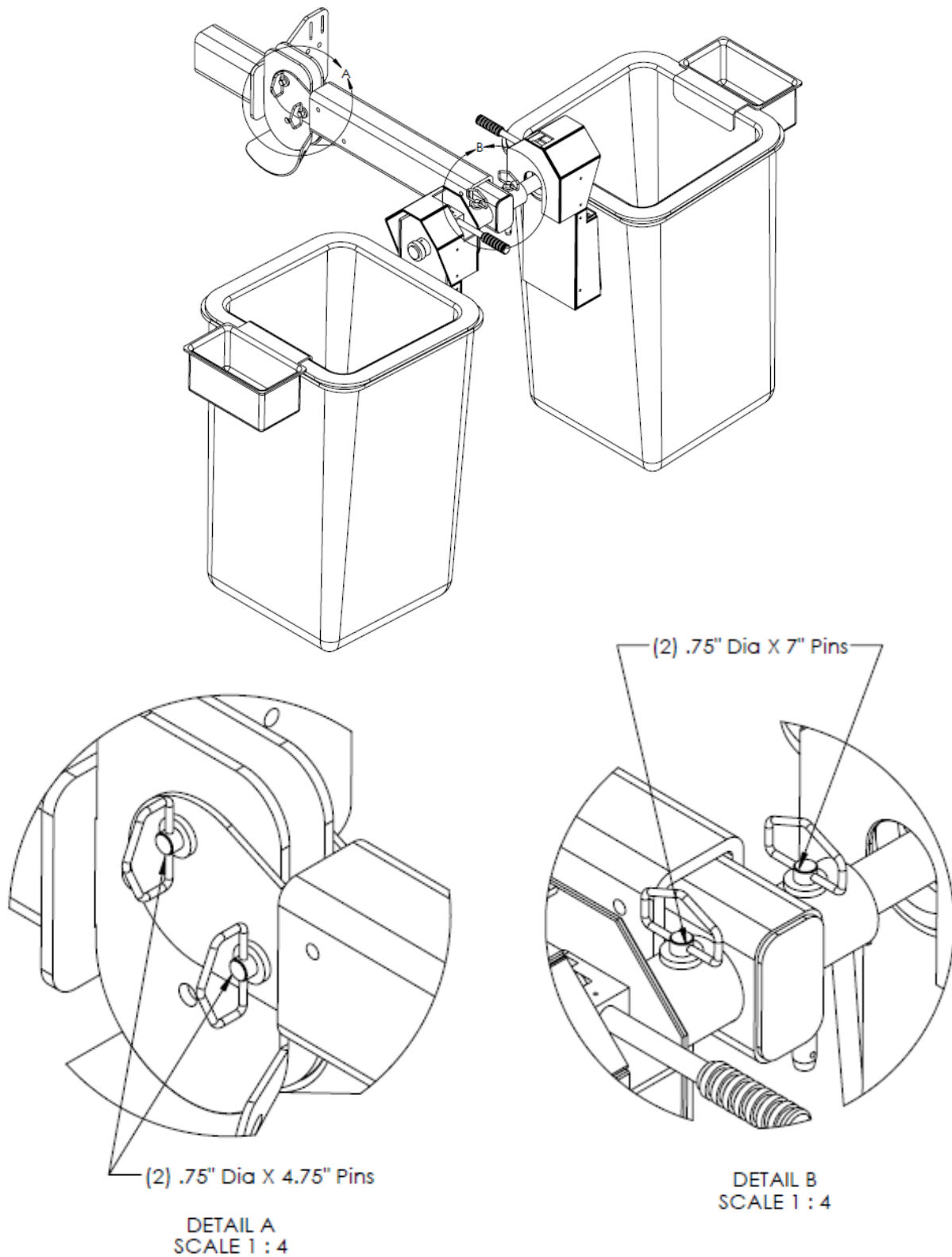
Single man bucket capacity for the Skylift Super 6000 LP is 350LBS. The capacity changes when the dual man bucket is used. Dual man bucket capacity for the Skylift Super 6000 LP is 300LBS for each bucket. Each bucket assembly has its own bucket brake. The brake should be released when the boom is maneuvering. Once into position, apply the brake by pulling the brake handle. Ensure the brake handle is securely in place and that the bucket does not move.

On the following page(s) is how the single and dual bucket assemblies should be attached to the boom.

# Single Man Bucket w/ Can Handler



## Dual Man Bucket



## Can Handler

The Skylift Super 6000 LP has the option to have a can handler attachment to the boom assembly. This attachment is intended to be used with the single man bucket attachment so that the person in the bucket has winching capability. The can handler is rated at 750LBS lifting capacity. The can handler can be pinned in two different positions on the sheevehead. Refer to the load chart for complete work zone limits. Always know the weight of the object that you are lifting.

The can handler's hydraulic fittings are to be plugged into the quick-disconnect fittings on the sheevehead. The "JIB/POLE GUIDE" boom control function is the function that controls the can handler's winch up/down ability.

Refer to the pictures on the previous page on how to pin the can handler to the sheevehead.

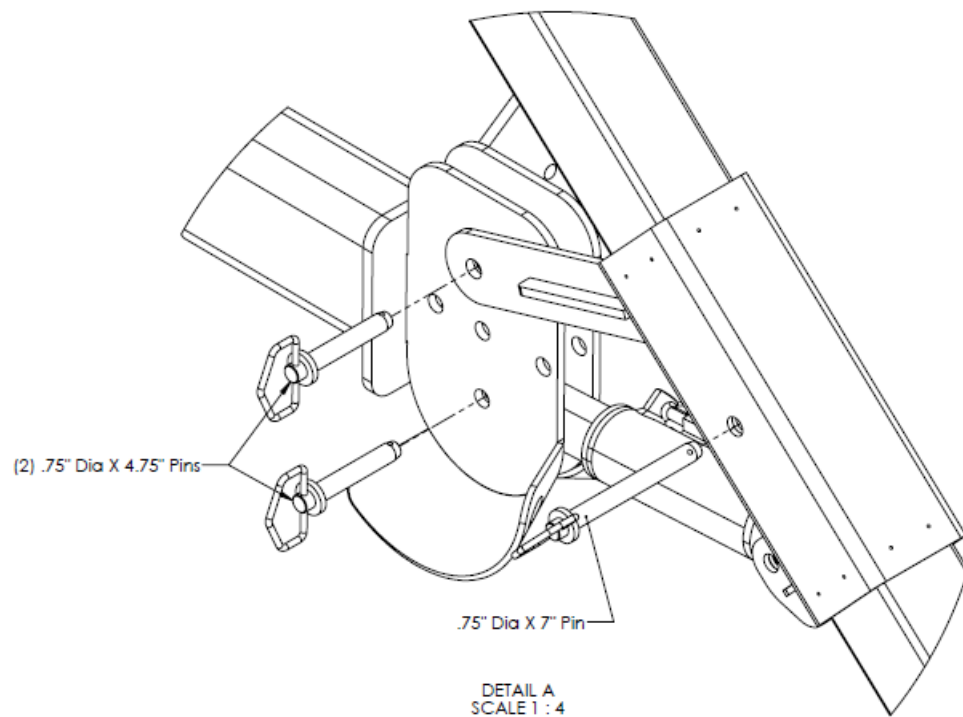
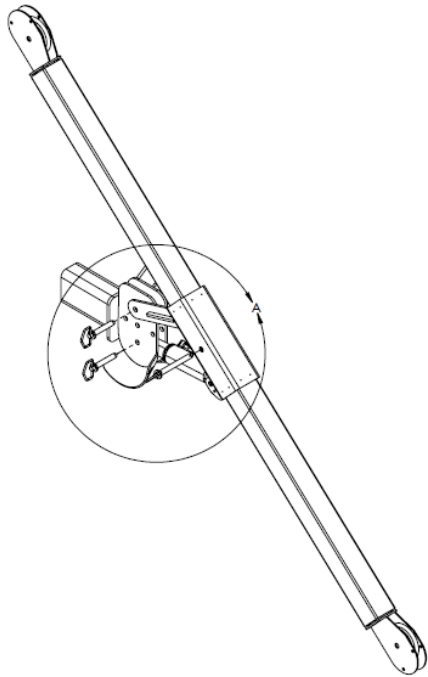
## Material Handler

The Skylift Super 6000 LP has the option to have a material handler attachment to the boom assembly. This attachment is intended to extend the sheevehead's height and aid the operator in lifting objects. The material handler is rated at 1,000LBS lifting capacity. The material handler has a hydraulic cylinder mounted to it so the operator is able to tilt the jib arm on the material handler. This gives the operator even more control of what they are lifting. Refer to the load chart for complete work zone limits. Always know the weight of the object that you are lifting.

The material handler's hydraulic fittings are to be plugged into the quick-disconnect fittings on the sheevehead. The "JIB/POLE GUIDE" boom control function is the function that controls the material handler's tilt up/down ability.

Refer to the picture on the following page on how to pin the material handler to the sheevehead.

## Material Handler





## Decals

If any of these items are illegible or missing, replace them immediately.

PART #	DECAL	QTY
DEC-107	DANGER OUTRIGGER CONTACT WILL CAUSE	4
DEC-108	DANGER ELECTROCUTION HAZARD	4
DEC-109	DANGER A MOVING OUTRIGGER	8
DEC-110	DANGER FALLING FROM PLATFORM	2
DEC-111	DANGER ELECTROCUTION HAZARD	4
DEC-112	DANGER FAILURE TO OBEY	3
DEC-113	AN UNTRAINED OPERATOR SUBJECTS HIMSELF AND OTHERS	3
DEC-114	SKYLIFT LOGO	2
DEC-164	MDS 6000 LOAD CHARTS (LARGE)	1
DEC-165	MDS 6000 LOAD CHARTS OVERHEAD VIEW (LARGE)	1
DEC-166	RANGER & MDS 6000 CAN HANDLER WORK ZONE (LARGE)	1
DEC-172	GREASE FITTING CHART	1
DEC-174	CAN HANDLER WINCH LINE SPECS	1
DEC-176	↑DO NOT PRESSURE WASH OR STEAM ↓	1
DEC-177	RANGER & MDS 6000 CAN HANDLER WORK ZONE (SMALL)	2
DEC-184	GREASE FITTING ON BOTTOM OF PIN	4
DEC-187	SKYLIFTUS.COM - WITH PHONE NUMBER	2
DEC-188	CAUTION KEEP CLEAR 10FT. WHEN MACHINE IS IN MOTION	2
DEC-189	EXTEND BOOM 3 MIN 36 IN. FOR INSULATION	3
DEC-191	CAUTION POLE GUIDE ONLY NOT FOR LIFTING	3
DEC-192	CAUTION OUTRIGGERS MUST BE PINNED FOR BOOM OPERATION	4
DEC-193	AUGER RELEASE	1
DEC-194	AUGER/WINCH	1
DEC-195	PULL E-STOP OUT	1
DEC-198	TOOL CIRCUIT VALVE MUST BE OFF	1
DEC-200	DIESEL ONLY	1
DEC-201	DO NOT DRILL HOLES IN BUCKET	1
DEC-202	BASKET CAPACITY 300LBS	1
DEC-203	BASKET CAPACITY 350LBS	1
DEC-207	BOOM 2	2
DEC-208	"AUGER UP" MUST BE USED TO STOW AUGER OR SEVERE DAMAGE WILL OCCUR!	1
DEC-209	AMERICAN FLAG	1
DEC-210	PIN HERE 750LBS. CAPACITY	2
DEC-211	PIN HERE 1000LBS. CAPACITY	2
DEC-214	OUTRIGGER CONTROLS	1
DEC-216	CAUTION HOT EXHAUST	1
DEC-217	GROUNDING LUG	1
DEC-220	TOOL CIRCUIT (SMALL)	1
DEC-221	REMOVE FOR OPERATION (SMALLER YELLOW & BLACK)	6
DEC-224	RETRACT BOOMS AND USE BOOM 2	1
DEC-225	BOOM FUNCTION VALVE	1
DEC-228	CHECK ROTATION BOLTS WEEKLY	2
DEC-236	MAIN BOOM ONLY WINCH LINE SPECS	1

## Decals (cont.)

If any of these items are illegible or missing, replace them immediately.

PART #	DECAL	QTY
DEC-237	DON'T USE PLATFORM WHILE DRIVING MACHINE	2
DEC-238	AUGER/WINCH SHUT OFF	1
DEC-239	CAN HANDLER ONLY	2
DEC-240	BOOM 3	2
DEC-241	JEFFEREY MACHINE AUGER DECAL	1
DEC-244	WARNING EXTREME CAUTION MUST BE USED WHEN INSTALLING SCREW ANCHORS	1
DEC-245	H.O.P. EQUIPED	1
DEC-246	ATTACH LANYARD HERE → (1" X 3" RED AND WHITE)	1
DEC-247	← ATTACH LANYARD HERE (1" X 3" RED AND WHITE)	1
DEC-250	CHECK HYDRAULIC FLUID DAILY	1
DEC-251	TOOL CIRCUIT OUT HALF THROTTLE	1
DEC-253	RECEIVER FOR HOSE REEL ONLY	1
DEC-254	MAX WEIGHT 2000 LBS. (VERTICAL YELLOW & BLACK)	4
DEC-255	FUSE BOX DECAL	1
DEC-256	BOOM CONTROLS & DRIVE CONTROLS (L-SHAPED)	1
DEC-257	ENGINE OIL DRAIN (2 X 2 YELLOW/BLACK) NEW DECAL	1
DEC-259	JIB/CAN HANDLER/POLE GUIDE	1
DEC-260	TOOL CIRCUIT/WORKLIGHTS/POLE GUIDE TILT/RPM	1
DEC-261	WARNING USING OUTRIGGER OVERRIDE MAY CAUSE (LG)	1
DEC-262	WARNING USING OUTRIGGER OVERRIDE MAY CAUSE (SM)	1
DEC-263	DIELECTRIC HYDRAULIC OIL MOBILE DTE 10	1
DEC-264	EMERGENCY POWER ON 30 SEC INTERMITTENT	*
DEC-265	WARNING CAPSTAN WINCH FOR FRONT OF MACHINE ONLY	*
DEC-268	RECOMMENDED MAX TOWING SPEED 60 M.P.H	2
DEC-270	TRACKS MUST BE EXTENDED FOR TRAVEL/ALARM WILL SOUND	1
DEC-272	WARNING MACHINE IS NOT DESIGNED FOR PULLING POLES	2
DEC-287	STOW ALIGN	3
DEC-293	LIGHT ON INDICATES OUTRIGGERS	1
DEC-307	TOOL CIRCUIT	1
DEC-314	TRACKS MUST BE EXTENDED FOR OPERATION! RETRACT ONLY THRU GATES	1
DEC-317	DO NOT RIDE	2
DEC-320	BOOM MUST BE ELEVATED OR AUGER REMOVED TO CARRY POLES ON THIS SIDE!	1
DEC-322	WARNING DAMAGE WILL OCCUR RETRACT BOOM 2	4
DEC-323	BEFORE PULLING AUGER RELEASE LEVER RETRACT BOOM 2	1
DEC-328	DRIVE STEERING (FOR TRACKS)	1
DEC-329	GREASE WEEKLY	1
DEC-330	CHECK HYDRAULIC FLUID WITH ALL CYLINDERS RETRACTED	1
DEC-331	LOW PRO SUPER 6000 (BOOM DECAL)	2
DEC-333	PLATFORM CAPACITY 300LBS	2
DEC-334	750LBS CAPACITY	4

\* STICKER ONLY NEEDED WITH OPTION ASSOCIATED WITH IT\*

## Decals (cont.)

DEC-107



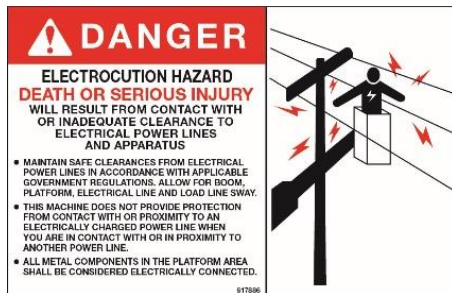
DEC-111



DEC-112



DEC-108



DEC-109



DEC-113



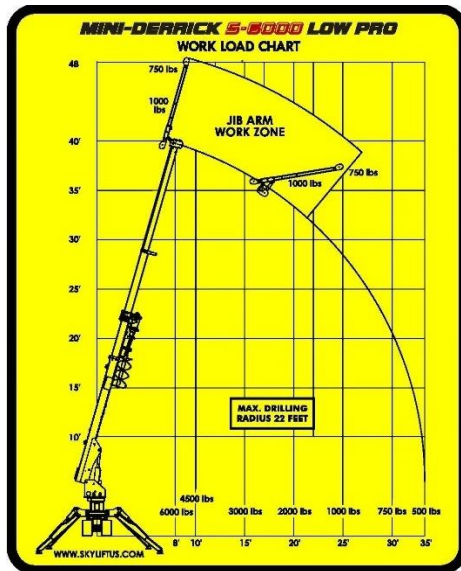
DEC-110



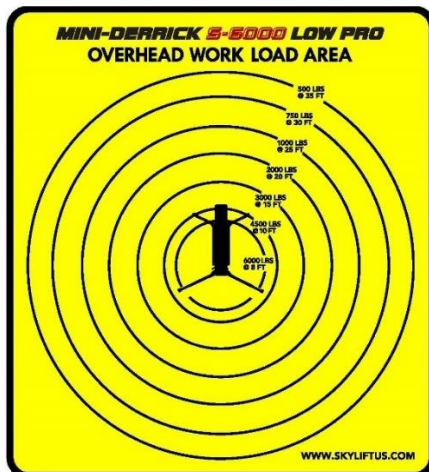
DEC-114



DEC-164:



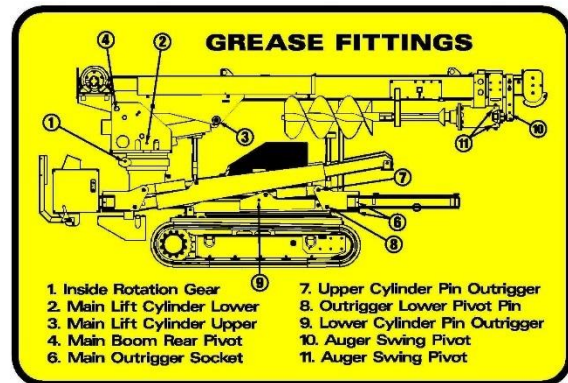
DEC-165:



DEC-166 (LARGE):



DEC-172:



DEC-174:

### Winch Line Specs Can Handler Only

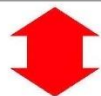
MFG: Cortland Puget Sound

**3/8" dia X 60 ft.**Parts Ordering:  
Skylift, Inc.

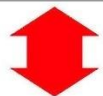
Call: (440) 960-2100

Part No. ROPE-102

DEC-176:



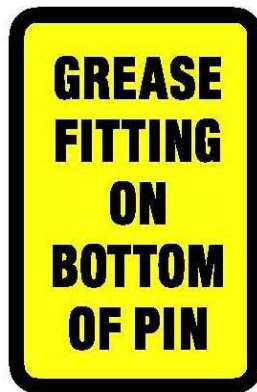
**DO NOT PRESSURE WASH OR STEAM  
CLEAN GEAR HOUSINGS OR SEALS  
SEVERE DAMAGE WILL OCCUR!!!**



DEC-177 (SMALL):



DEC-184:



DEC-192:



DEC-193:



DEC-187:



DEC-188:



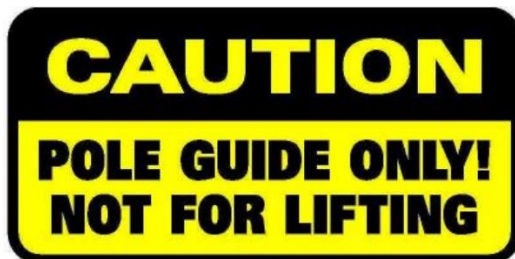
DEC-194:



DEC-189:



DEC-191:



DEC-195:





DEC-198:



DEC-200:



DEC-201:



DEC-202:



DEC-203:



DEC-207:



DEC-208:



DEC-209:



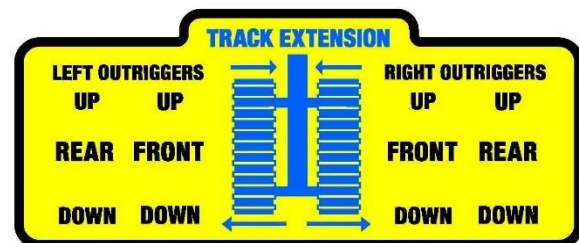
DEC-210:



DEC-211:



DEC-214:



DEC-216:



DEC-217:



DEC-220:



DEC-221:



DEC-224:



DEC-225:

DOWN/CLOSE	DOWN	CW	OUT	OUT	DOWN
HYDRAULIC TOOLS	JIB/POLE GUIDE	AUGER WINCH	BOOM	BOOM 2	BOOM 3
UP/OPEN	UP	CCW	IN	IN	UP

DEC-228:



DEC-236:



DEC-237:



DEC-238:



DEC-239:



DEC-240:



DEC-241:



DEC-242:



DEC-244:



DEC-245:



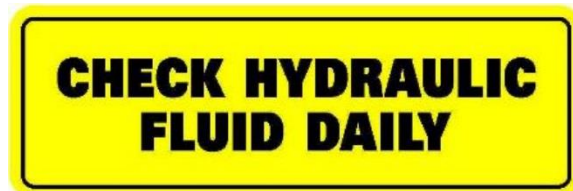
DEC-246:



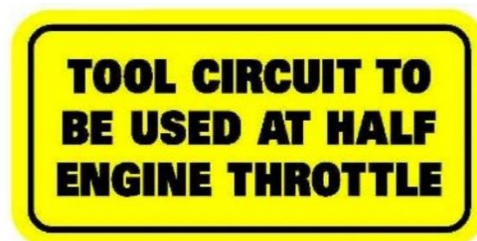
DEC-247:



DEC-250:



DEC-251:



DEC-253:



DEC-254:





DEC-255:

ACC BUS		
1	ALTERNATOR	10amp
2	MURPHY SWITCH	10amp
3	OUTRIGGER INTERLOCK	20amp
4	FUEL PUMP	10amp
5	D.C.PUMP/FUEL GAGE	10amp
6	TRACK/OUTRIGGER WARNING	10amp
7	REMOTE	15amp
8	TRACK HI SPEED	10amp
9	START / STOP	10amp
10	GPS / IN IDLE	5/30amp
11		10amp
12	H.O.P.	10amp
13	TILT/TILT ALARM	10amp
14	AUGER STOW	10amp
HOT BUS		
15	START / STOP	10amp
16	HYDRAULIC OIL COOLER	20amp
17	GPS	5amp
18	LIGHTS	10amp
19	D.C.POWER OUTLET	20amp
20		

DEC-256:



DEC-257:



DEC-259:



DEC-260:



DEC-261:



DEC-262:



DEC-263:



DEC-264:



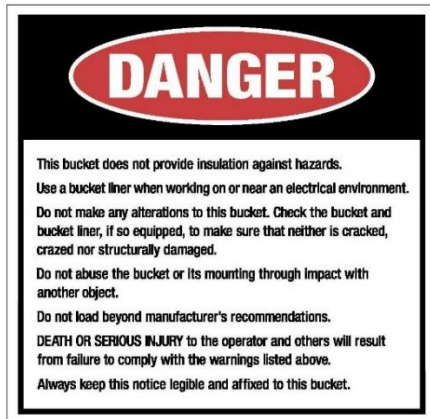
DEC-265:



DEC-268:



DEC-269:



DEC-270:



DEC-272:



DEC-287:



DEC-293:



DEC-307:



DEC-314:



DEC-317:



DEC-320:



DEC-322:



DEC-323:



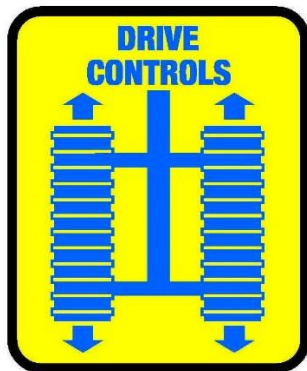
DEC-326:



DEC-334:



DEC-328:



DEC-329:



DEC-330:



DEC-331:

**MINI-DERRICK S-6000 LOW PRO**

DEC-333:



# Installation and Quick Start Guide

## G2B Radio Remote Control System



System Name	Manual Part Number	Revision	Date
Skylift MD 6000 Quick Start Guide	MAN-G2B-XX	Rev 7	9/14/2017



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4.3	Battery and Charging	12
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4.7	Display Features	15

Revision	Date	Name	Notes
1	07/2012	Scanreco NA	Initial Release
2	01/2014	AL	Added Tool Switch Switch to 310
3	09/2014	AL	Added Speed High Switch to 305
4	12/2014	AI	Removed Tool Switch
5	08/2015	AL	Wheeled Version
6	08/2016	AL	Added LCD display and safety modification
7	09/2017	AL	Danfoss Current Controlled Valve

## 1 G2B System Overview

This guide is intended as a complement to the Service Manual and Remote Control System RC400 G2 Instruction manual. It is a brief overview of the important features of a specific radio remote control system. Installers and Operators must read the Service Manual and Instruction manual before installing / operating the system and adhere to all warnings and recommendations.

The Scanreco G2B Radio Control (RC) System offers the machine operator an extremely advanced remote control system with speed, precision, control and maximum safety. The G2B RC System is comprised of the following components:



No	SNA Part Number	Description	Qty
N/A		Typically includes all items listed below	N/A
1	PCU-MINI-XX	Portable Control Unit (PCU) Mini or Maxi (shown)	1
2	3011	Central Unit (CU)	1
3	434	Battery charger	1
4	592	Battery cassette (NiMH 7.2 VDC)	2
5	47545	Tether cable (10 meters)	1

## 2 CU Installation and Wiring

The following instructions will help an installer wire the Central Unit to the controls of your specific machine. The installer may choose to make the wiring harness himself or use the generic Scanreco wiring harnesses for ease of installation. Please consult your sales representative for more information regarding generic wiring harnesses.

Read this entire section before proceeding with the installation. In order to maximize product life and prevent involuntary service, **this section must be followed** when installing and wiring your CU.

### Important Notice About Welding!



If you plan to do any welding on the machine after the CU has been installed; the CU's electrical connections **must always be disconnected!** Power supply cables (+ and -), all valve contacts, tether and all other wiring to the CU must be disconnected. Welding can cause severe damage to all vehicle electronics and if detected may void your warranty.

### A. Locating the CU



BEST



No

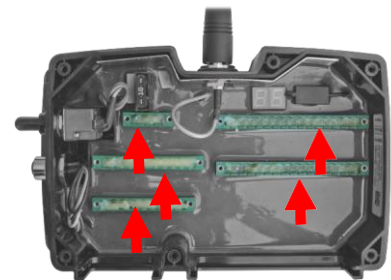


No

- **For optimum radio communications** the CU or external antenna should be located as high on the machine and free from obstructions as possible. An antenna screened and surrounded by fixed objects (especially metal) will considerably reduce radio range
- The antenna pin must not touch any metal object
- The central unit should be mounted in a vibration free location and not be subjected to strong sources of heat (for example exhaust pipes etc.)

### B. Apply Grease to Contact Pins

If grease is not already applied to all the connector pins of the CU (shown in the picture); be sure to add water resistant grease suitable for electronic applications to the areas noted.



### C. Feed Cable Through Membrane



Pierce the membrane and feed the cable through. A tight fit ensures a good seal.

### D. Secure Cable



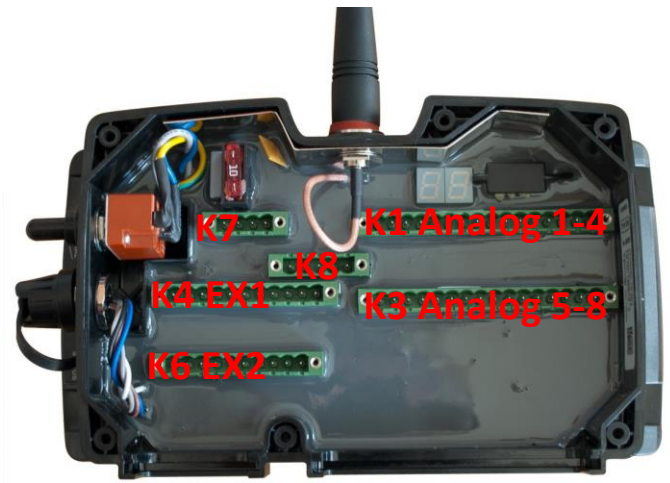
Secure the inner side of the cable with a cable tie or similar.

## E. Terminal Schematic

### K7 Main

Pin no	Function	
K7.1	Supply (+12/24VDC)	RED
K7.2	Ground (GND)	Black
K7.3	Dump Valve Out (DV+)	Org/Grn
K7.4	DV GND	Black

**Note:** An electrically controlled dump valve should always be connected, for safety reasons, between the function valves and the hydraulic tank. **During a system stop DV+ will be off** to ensure the system is without hydraulic



**Note:** Pin 1 starts on the Left for all connectors.

### K1 Analog Outputs

Pin no	No	Function Name	
K1.1	1A	Jib/Pole Guide/Tilt/Can-H	Green
K1.2		GND	Black
K1.3	1B	Jib/Pole Guide/Tilt/Can-H	Gray
K1.4		GND	Black
K1.5	2A	Auger/Winch Down	Brown
K1.6		GND	Black
K1.7	2B	Auger/Winch Up	Blue/White
K1.8		GND	Black
K1.9	3A	Boom CW	Red/Black
K1.10		GND	Black
K1.11	3B	Boom CCW	Purple
K1.12		GND	Black
K1.13	4A	Boom 2 Out	Yellow/Black
K1.14		GND	Black
K1.15	4B	Boom 2 In	Yellow
K1.16		GND	Black

### K4 EX1—Digital Outputs / Inputs

Pin no	Function	
K4.1	RPM High	Orange
K4.2	Engine Start	Tan
K4.3	Engine Stop	Blue
K4.4	RPM Low	Not Used
K4.5	Boom Enabled	Org/Blk
K4.6	Tracks Enabled	Org/Red
K4.7	GND	
K4.8	Feeder Set Input	
K4.9	Digital input 2	
K4.10	Digital input 3	
K4.11	Input supply (+VDC)	

### K3 Analog Outputs

Pin no	No	Function Name	
K3.1	5A	Boom 3 Out	Black/Red
K3.2		GND	Black
K3.3	5B	Boom 3 In	Black/Yellow
K3.4		GND	Black
K3.5	6A	Boom Down	Black/White
K3.6		GND	Black
K3.7	6B	Boom Up	White/Black
K3.8		GND	Black
K3.9	7A	Left Track Forward	Blk/Wht/Red
K3.10		GND	Black
K3.11	7B	Left Track Reverse	Blk/Wht/Ylw
K3.12		GND	Black
K3.13	8A	Right Track Forward	Blu/Wht/Blk
K3.14		GND	Black
K3.15	8B	Right Track Reverse	Blu/Gry/Pur
K3.16		GND	Black

### K6 EX2—Digital Outputs / Inputs

Pin no	Function	
K6.1	Tool ON	Yellow/Green
K6.2	Tool On	White/Black/Red
K6.3	Pole Claw Tilt ON	Grn/Blk/Wht
K6.4	Pole Claw Tilt OFF	Not Used
K6.5	GND	
K6.6	Travel High	Red/Blk/Wht
K6.7	Unused Digital Output 12	
K6.8	Unused Digital Output 13	
K6.9	Unused Digital Output 14	
K6.10	GND	

### K8 EX3—Optional Features

Pin no	Function
K8.1	CAN High
K8.2	CAN Low
K8.3	CAN GND
K8.4	Not Used
K8.5	Not Used



## F. Special Logic Functions

**BOOM ENABLE/TRAVEL** switch (S9) must be in the center OFF position for the transmitter to link to the receiver.

Analog Outputs 1 - 6 and the POLE CLAW TILT outputs only operate when the BOOM ENABLE switch is held in position on either side.

Analog Outputs 7 - 8 and SPEED HIGH only operate with the switch in the Travel position.

Engine and RPM operate in both Boom and Travel.

Engine Start is disabled in Boom or Travel.

The transmitter will shut itself off as a battery saving measure after **10 minutes** of inactivity.

## G. Wire Inputs / Outputs

Inputs and Outputs need to be wired to the appropriate functions on the machine and in the CU. Leave unused and spare functions un-terminated.

Install 22-18AWG wire, appropriate for current consumption of loads (1.5 Amps max per output) with proper sized Ferrell cable end.

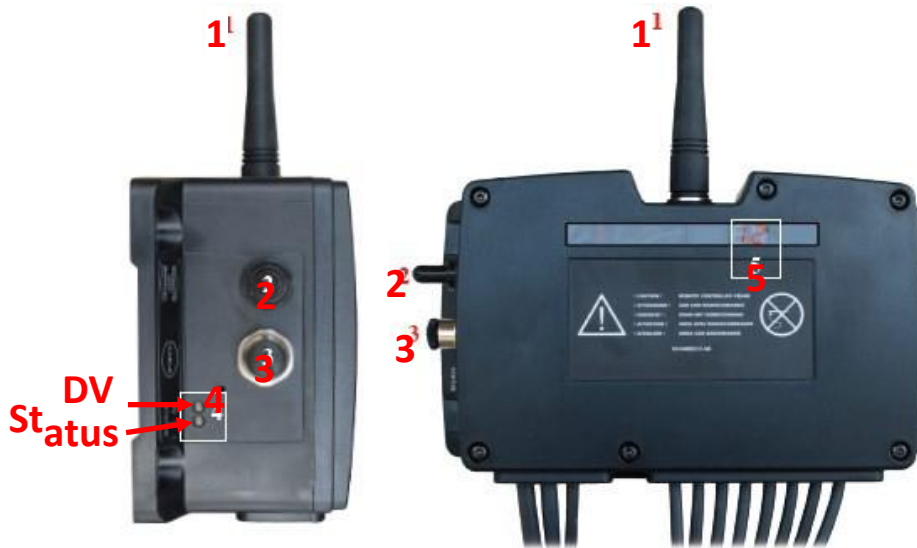
Orient cables as shown and apply water resistant grease suitable for electronic applications to the terminal connectors.



## 3 CU (Receiver)

### 3.1 CU Layout and Indicators

The Central Unit is equipped with 2 individual positions where status and operational indications can be read, the external LED's: DV and STATUS provide basic information. The internal LED display provides more detailed information. Below is the layout of the CU:



No	Description
1	RF Antenna
2	Remote / OFF / Manual Switch
3	Tether / Programming Connector
4	DV and STATUS LED's
5	Internal LED Display




**Note:** For CU's build before Fall 2010 the CU cover must be removed to view the Internal LED Display; for later units there is a viewing window as shown.

### 3.2 RF Antenna

The Central Unit show has a standard whip antenna with TNC connector. Optional antennas are available for various types of installations and range requirements. Please consult your sales representative for more information.

### 3.3 Remote / OFF / Manual Switch

The Central Unit is equipped with a Remote / OFF / Manual Switch to power the CU in different modes of operation:

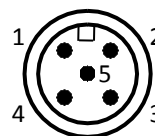
-  OFF: there is no power to the internal electronics, Dump Valve or any outputs
-  REMOTE: electronics are powered; PCU can link to CU and Dump Valve and outputs operate as specified
-  MANUAL: there is no power to the internal electronics or any outputs; Dump Valve is ON. This bypasses the Dump Valve output to enable operation of manual or hand lever controls, if equipped.

### 3.4 Tether / Programming Connector

The CU can be connected through the Tether Connector to the PCU via a 5 wire tether cable. The cable has M12 connectors at each end.

The tether cable disables the RF transmission and charges the PCU battery, if installed. The cable is available in standard lengths of 10 meters.

The CU can also be connected to a PC for programming an calibration. Refer to Service Manual and WinSCI Manual for further details.



Pin No	Description
1	Data
2	Ground
3	RS232 TX
4	RS232 RX
5	+ Battery (VDC)

## 3.5 DV and STATUS LED's

Operational status indications can be read from the DV and STATUS LED's as follows:

Status LED	Description
OFF	CU is OFF or not powered
RED	CU is ON with no link to PCU
GREEN	CU is ON and linked with PCU (via cable or RF)
RED Flashing	Error code on Internal LED Display (see Section 3.6.2)

DV LED (Dump Valve)	Description
OFF	Dump Valve Output is OFF
RED	Dump Valve Output is ON



## 3.6 Internal LED Display

### 3.6.1 Operational Indicators

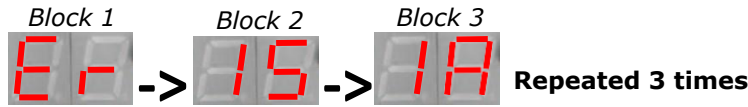
The Central Unit will indicate various operational states via the Internal LED display as shown below:

Indication		Meaning
Block 1	Block 2	
	(Rotating CCW)	CU is powered and not Linked to PCU
	N/A	Primary PCU is linked to CU via Radio, Hopping (1H flashes as link gets weaker)
	N/A	CU is linked to primary PCU (ID programmed) via tether cable
	N/A	CU is linked via tether cable to PCU (ID not programmed)
		ID Programming initiated. See section 4.6 for details
		ID Programming Blocked; reset power on CU and Download ID again. See section 4.6 for details

## 3.6.2 Error Indicators

The Central Unit will indicate detected errors via the internal double 7-segment LED display. If the Central Unit detects an error it will be indicated by the STATUS LED flashing red; while the Internal LED Display indicates the error code. The digits "Er" are flashed, followed by two blocks with the corresponding error code.

Example of an error code sequence:



*The example above would indicate that there is a Short Circuit on PWM Output 1A*

The error code sequence will repeat itself three times if the error is considered a soft error and reboot to standby mode to try and clear the error. If the error is considered a hard error the error code sequence will repeat until the power is disconnected.

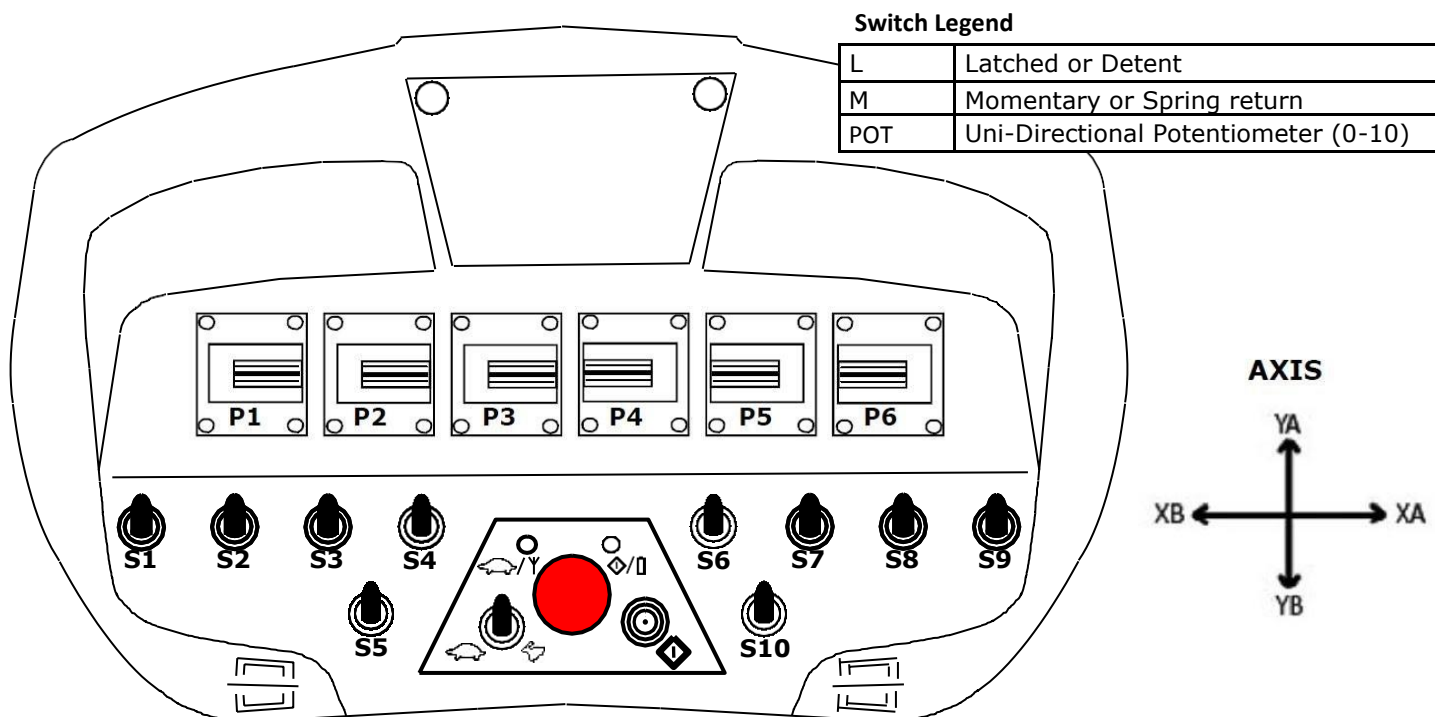
Below is a list of error codes and their meaning:

Block 2	Block 3	Description	Cause	Action
01	01	EEPROM Failure	Incorrect checksum on EEPROM, last stored data will be set.	Reset system, if persistent; Re-load application program.
01	02	Flash Memory Failure	Incorrect checksum on flash memory.	Reset system, if persistent; Re-load application program.
01	03	Stack Memory Failure	Incorrect sizes of data in CANopen protocol, incorrect dataflow or stack overflow.	System will self reset automatically. If persistent; Re-load application program.
01	04	RAM memory failure	Incorrect RAM and/or hardware identification.	System will self reset automatically. If persistent; Re-load application program.
02	01	Illegal voltage DV-output	DV-output (DV+) externally supplied System will self reset.	Check DV-output connection. Remove terminal connector and reset system.
02	02	Short circuit DV-output	DV-output error; DV output (DV+) short circuited or overloaded.	System will self reset. Check DV-output connection. Remove terminal connector and reset system.
02	03	Safety switch error	Safety switch output read back error, incorrect voltage (High instead of Low).	System will self reset. Remove all terminal connectors and reset system.
02	04	Safety switch error	Safety switch output read back error, incorrect voltage (Low instead of High).	System will self reset. Remove all terminal connectors and reset system.
02	05	CAN Safety loop error	Incorrect status of CAN safety loop.	System will self reset. Check CAN safety loop connection. Reset system.
03	00	Illegal voltage Digital output	Digital output (1-14) illegal voltage, expected low signal but read as high (could be any of the available 14).	System will self reset. Check digital output connections. Remove terminal connector and reset system.
04	00	Short circuit; Digital output	Digital output (1-14) short circuited or overloaded (could be any of the available 14 outputs).	System will self reset. Check digital output connections. Remove terminal connector and reset system.
05	00	Error input triggered (Danfoss CU only)	Error signal for Danfoss valve triggered (Could be any of the available 8 inputs)	System will self reset. Check analog output connections. Remove terminal connector and reset system.
06	xx	Illegal voltage Analog output	Wrong voltage on analog output ( <b>Block 3</b> declares related output; 1A,1B....).	System will self reset. Check analog output connections. Remove terminal connector and reset system.

## 3.6.2 Error Indicators (cont'd...)

Block 2	Block 3	Description	Cause	Action
07	xx	Illegal voltage Analog output	Wrong current on analog output ( <b>Block 3</b> declares related output; 1A,1B....).	System will self reset. Check connections. Remove terminal connector and reset system.
08	01	CAN Passive	CAN bus in passive mode.	System will self reset. Check CAN connections. Check other nodes on bus and reset system.
08	02	CAN I/O buffer overflow	CAN overrun; either the CAN input or CAN output buffer are full.	System will self reset. Reset system, re-initiate via CAN controller.
08	03	CAN physical layer error	Bad communication/transmission.	System will self reset. Check CAN connections. Check other nodes on bus and reset system.
08	04	CAN PDO length exceeded	PDO length is to long.	System will self reset. Reset system, re-initiate via CAN controller.
08	05	CAN PDO length error	PDO length is too short.	System will self reset. Reset system, re-initiate via CAN controller.
08	06	CAN Transmit COB-ID collision	To many collisions on CANbus.	System will self reset. Check CAN connections. Check other nodes on bus and reset system, re-initiate via CAN controller.
10	N/A	PCU failure; E-Stop	Error transmitted from PCU: Illegal signal from PCU emergency stop switch.	System will self reset. Check emergency stop switch on PCU.
11	N/A	PCU failure; Analog input	Error transmitted from PCU: Analog input active on start-up.	System will self reset. Ensure all analogue inputs on PCU are at zero/neutral position. Restart PCU.
13	N/A	PCU failure; Analog input	Error transmitted from PCU: Signal redundancy test; illegal signal from analog input.	System will self reset. Diagnose PCU via TEST MODE.
14	01	ID program- ming failure	ID-code and/or parameter settings not accepted.	System will self reset. Retry ID-programming procedure.
14	02	Program fail- ure	Programmable logic parameter error.	System will self reset. Reset application program.
15	xx	PWM output failure	Analog output short circuited or overloaded. ( <b>Block 3</b> declares related output; 1A,1B....).	System will self reset. Check analog output connections. Remove terminal connector and reset system.
16	xx	PWM output failure	Analogue output not connected (programmable feature). ( <b>Block 3</b> declares related output; 1A,1B....).	System will self reset. Check analog output connections. Remove terminal connector and reset system.
17	01	Low supply power	Low power supply (Below 8.5 VDC).	System will self reset. Check power supply and supply connections.
17	02	High supply power	High power supply (Above 36 VDC).	System will self reset. Check power supply and supply connections.

### 4.1 Mini Switch and Joystick Layout



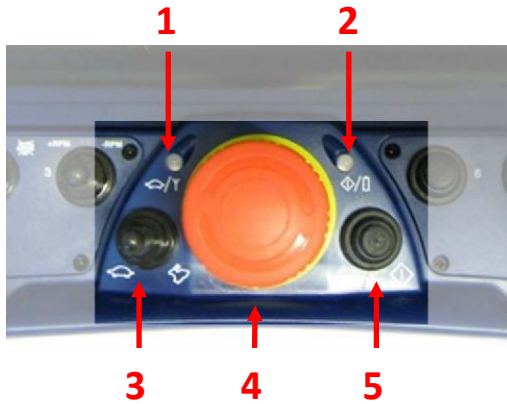
#### Paddles

Axis	Function in (A) Direction	Function in (B) Direction
P1	Jib Down/Pole Guide Close	Jib Up/Pole Guide Open
P2	Auger/Winch Down	Auger/Winch Up
P3	Boom CW/Left Track FWD	Boom CCW/Left Track Rev
P4	Boom 2 Out/Right Track FWD	Boom 2 In/Right Track Rev
P5	Boom 3 Out	Boom 3 In
P6	Boom Down	Boom Up

#### Switches

Position	Axis	Function A		Center	Function B	
		Type	Name		Type	Name
S1	Y	M	Boom Enable	N/A		
S2	Y	L	Pole Claw Tilt On	N/A	L	Pole Claw Tilt Off
S3						
S4	Y	M	Engine Start	OFF	M	Engine Stop
S5	Y	L	Travel High	N/A	L	Speed Low
S6	Y	L	RPM High	N/A	L	RPM Low
S7						
S8						
S9	Y	M	Boom Enable	LINK	L	Travel
S10	Y	L	Tool Circuit On	OFF	L	Tool Circuit On

## 4.2 Power / Stop / Micro Speed Switch Panel

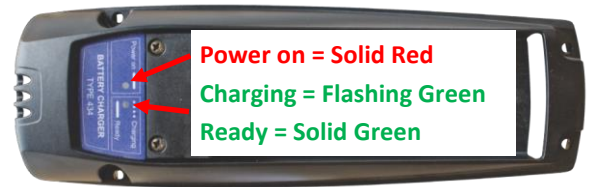


No	Description
1	Micro Speed (Green) / RF Indicator (Red) LED
2	Power ON / Low Battery LED
3	Micro Speed Switch
4	Stop Function Mushroom Button; twist to reset
5	Power / Function Button

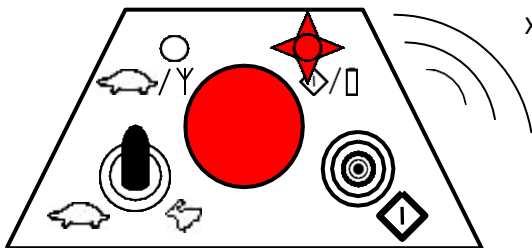
The above figure and table detail the layout of a **Maxi** generic Power / Stop / Micro Speed Switch panel. **Mini** switch panels are very similar in layout with the same functionality. Indicators and switch functions are detailed in the sections below.

## 4.3 PCU Battery and Charging

- Each Battery needs to be fully charged before use. Connect charger to 10-32 VDC or 120 VAC depending on type supplied.
- PCU battery compartment is located in the bottom of the PCU housing. Batteries are keyed to ensure correct orientation.



- Ensure terminals are clean and free from debris before installation of a battery
- A new fully charged battery will last approximately 8 hours on a charge. Extremely cold conditions can reduce battery performance.
- PCU's are typically programmed with a 5 minute inactivity timeout as a battery saving feature; turning off the PCU after X minutes of paddle / joystick inactivity. This is a configurable feature that can be adjusted or removed as requested.



X 3

**Low Battery** is indicated on the PCU when the internal Buzzer beeps 3 times and the Power ON / Low Battery LED flashed Red.

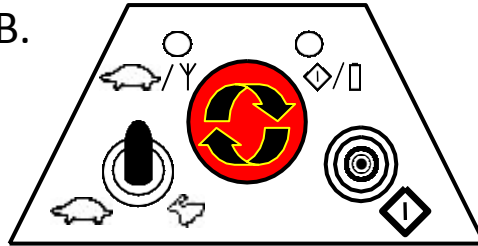


## 4.4 Powering the PCU

A.

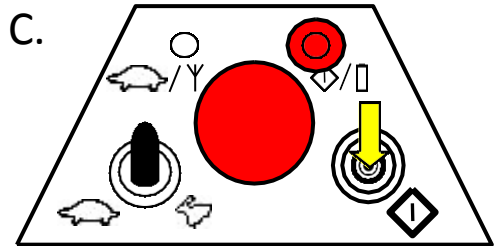
Install charged battery or connect tether cable

B.



Rotate E-Stop CW

C.



Press and hold Power Button until Power ON LED will illuminates solid RED

D.

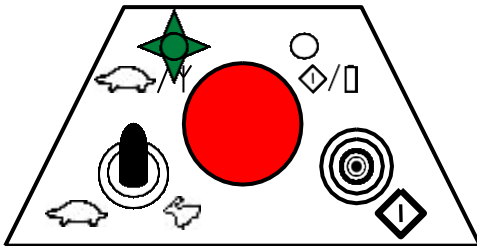


**Note:** If no link is established the RF indicator LED will flash RED 4 times then turn off. Continue to Section 4.6 Downloading ID: Pairing PCU and CU.

**Tether Note:** Tether connection has priority over RF transmission, if a tether link is present between the PCU and CU the radio will be disabled and battery will be charged (if installed). The PCU inactivity timeout will also be disabled when connected via tether cable.

## 4.5 Micro Switch Operation

The Micro Speed Switch can be programmed to reduce the maximum speed of any Proportional Paddle / Joystick outputs. Typically in five (5) steps as indicated in the table below. The number of steps and percentage of reductions is adjustable.



Micro / RF LED Green	Indication
not lit	0 to 100 % speed (normal speed)
1 blink every third second	0 to 60 % speed
2 blink every third second	0 to 50 % speed
3 blink every third second	0 to 40 % speed
4 blink every third second	0 to 30 % speed
5 blink every third second	0 to 20 % speed



Pressing the Micro Speed switch to the Turtle position will decrease the proportional outputs by one step in the above table.



Pressing the Micro Speed switch to the Rabbit position will return the proportional outputs to 100% operation.

- For safety reasons, a return to 100% steering can only be made if all Paddles / Joysticks are in their center positions.
- When the green LED is blinking, the Micro-speed function is activated. The number of blinks indicates the operating speed as defined in the table above. If the Stop Function is pressed on the PCU, the PCU will start from the last chosen speed.

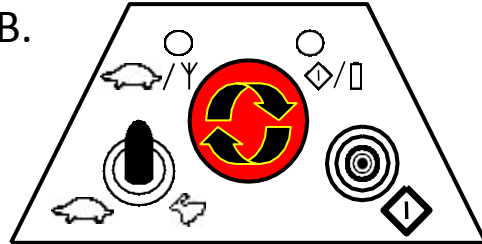
## 4.6 Downloading ID: Pairing PCU and CU

Programs the unique ID-code required for radio communication between the Portable Control Unit and Central Unit. Typically the CU may store a maximum of 1 PCU ID-code. If another PCU is required to operate the CU via radio, the ID-code procedure is required to be done and the previous ID-code will be overwritten.

A.

Remove battery from PCU and connect tether cable between CU and PCU.

B.



Release E-Stop; Rotate CW

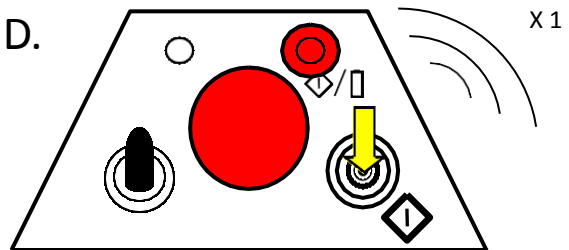
C.

### Remote / OFF / Manual Switch

Cycle power on CU -> Toggle switch from OFF (center) to Remote (up) position. *Step D. must be done within 45 seconds of C.*



D.



Press and hold Power Button (approx. 10 Seconds) until Power ON LED illuminates solid RED and Buzzer in PCU beeps once.

PCU ID is now being sent to CU.



E.

The PCU will beep in quick succession to confirm programming is completed.

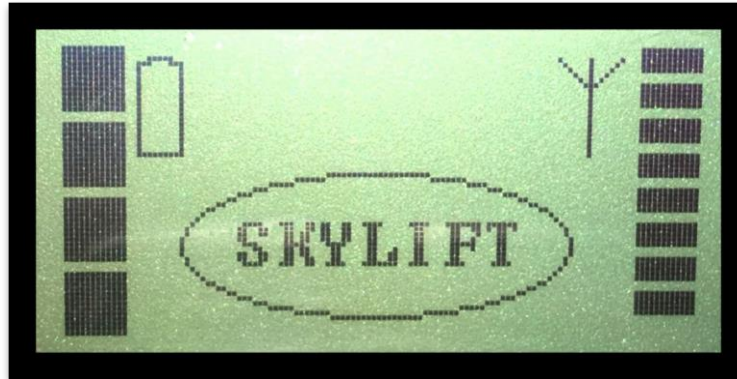
F.

If this procedure does not work, repeat the programming ( see items B-E ). If it still does not work, contact Scanreco North America.

## 4.7 Display Features

### Home Screen

**Battery Level  
Indicator**



**Radio Signal  
Indicator**

Solid bars indicate battery level. The more solid bars the more battery life remaining. Low Battery is still indicated on the PCU when the internal Buzzer beeps 3 times and the Power ON / Low Battery LED flashed Red.

Solid bars indicate radio signal detected. The more solid bars displayed the stronger the signal.



### Communication Error

In the event the transmitter and the receiver have lost signal between one another this graphic will be displayed.

Also in the event a switch is not in neutral/off position at start up this is the graphic that is displayed.