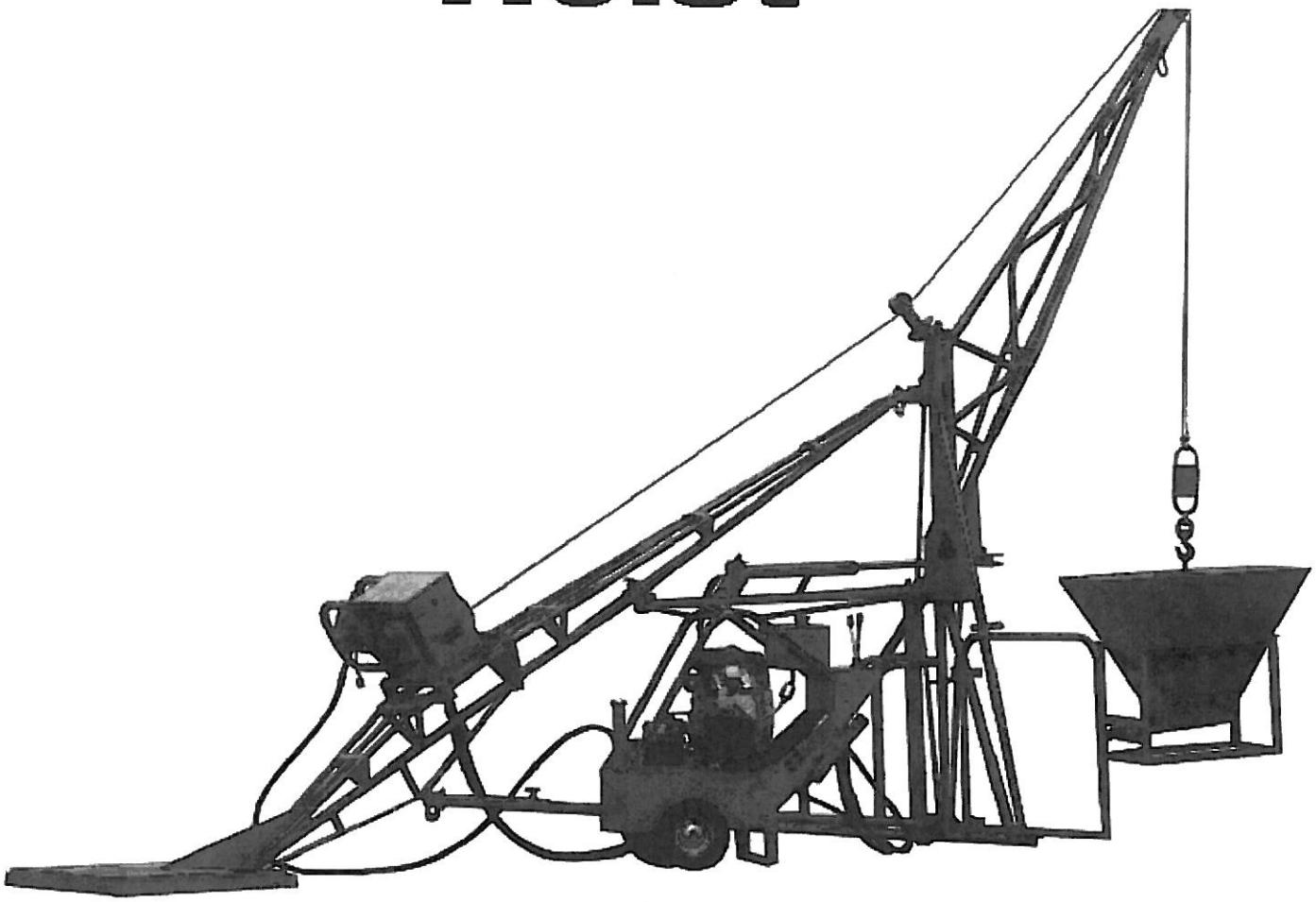
Hydraulic Swing Hoist



Instruction Manual

ALL SEASONS EQUIPMENT

2170 Winston Park Dr.
Oakville, Ontario, Canada
L6H 5R1
1-888-308-4763 www.asequip.com

Pre Hoisting Checklist

- ☐ Discuss work plan, personal protective equipment, and each crew members responsibility before starting to set up
- ☐ Ensure OSHA approved roof top barriers are in place
- ☐ Ensure a competent person (qualified engineer) has determined the structural deck can support the intended loads in hoisting and material handling.
- ☐ Ensure hoisting operation will clear all power lines and obstructions
- ☐ Ensure hoisting area is secured from all unauthorized personnel
- ☐ Ensure that all hoisting accessories such as forks, buckets and slings are commercially manufactured, are in good condition.
- ☐ Capacity of slings decreases as the angle increases. Ensure slings have a capacity of at least 2000 lbs and are in good condition.
- ☐ Inspect the wire rope for signs of wear, damage or pinching. Replace if required.
- ☐ Ensure at least three wraps of wire rope on the winch drum at maximum travel
- ☐ Ensure bolt securing wire rope end loop to the drum flange is right and in good condition
- ☐ Ensure the wire rope is unwinding from the bottom, not top of the cable drum
- ☐ Ensure there is sufficient weight on the wire rope to maintain 10 lbs of tension at all times
- ☐ Ensure that the counterweight frame is bolted together and that all 5 bolts are in place and secure.
- ☐ Ensure that the front frame is bolted together and all 4 bolts are in place and secure.
- ☐ Ensure the bolt on the lower telescopic stabilizer is secure and in good condition.
- ☐ Ensure the lower pin and hairpin between front frame and stabilizer are connected and in good condition
- ☐ Ensure the upper pin and hairpin between the front frame and upper counterweight frame are connected and in good condition.
- ☐ Ensure the pin between the cylinder mount and counterweight boom are connected via the sliding tube and in good condition.
- ☐ Ensure the wing bolt on the sliding tube is tightened in and does not allow the cylinder mount to move.
- ☐ Ensure the pin and hairpin between the front frame and cylinder frame are connected and in good condition
- ☐ Ensure the pin and hairpin connecting the cylinder to the cylinder frame are connected and in good condition
- ☐ Ensure the pin and hairpin connecting the cylinder to the swing frame are connected and in good condition.
- ☐ Ensure the pin and hairpin between the winch and counterweight frame are connected and in good condition
- ☐ Check the 4" and 6" steel pulley wheels for lubrication, they should be greased daily.
- ☐ Ensure the operator fence is in place
- ☐ Ensure the Swing Boom is completely seated in the front frame tubes
- ☐ Ensure that the structural members of the hoist are free of defects and damage which may affect the integrity of the hoist
- ☐ Ensure the front vertical frame is vertically plumb
- ☐ Ensure that ASE approved counterweights totaling 1 ½ the load weight are secured in the counterweight container with rope or chain (Check local regulators for differing safety factors) .
- ☐ Ensure the pivot sheave can rotate freely and is in the rear position, facing towards the hoist winch
- ☐ Ensure the pin through the cable keeper is in good condition and is securely in place
- ☐ Ensure the cable keeper is in the locked position
- ☐ Ensure the swivel hook has a rated capacity of at least 2000 lbs and is in good condition
- ☐ Ensure the safety latch on the swivel hook does not support any load.
- ☐ Ensure all shackles have a rated capacity of at least 2000 lbs and are in good condition
- ☐ Ensure the power unit has been properly maintained
- ☐ Ensure the hydraulic hoses are properly connected and in good operating condition
- ☐ Operate the hoist with a minimum load to test hoisting operations, controls and power unit. A minimum load is a load 50 lbs or less, enough to maintain cable tension.

Inspector:_____ Date_____

Safety Precautions

Obligations and Usage

This product is intended to be used on under the guidelines of this manual and relevant literature published by All Seasons Equipment, div ESKO Equipment Mfg. It is the owner and/or operator's obligation to ensure this product is operated only for its intended uses. Operation contrary to the guidelines set forth may cause premature breakage of the equipment and create serious safety problems.

INTENDED USE: This machine is intended to be used for the sole purpose of hoisting materials and equipment directly up from the ground to the roof or directly down from the roof to the ground. Hoist is for use on flat, level roofs only. Any other use of this equipment voids the manufacturer's warranty and is the sole responsibility of the owner/user should any injury occur

Maximum Rated Loads

2000 Single Line Hydraulic Swing Hoist:	2000 lbs Single Line
2000 Double Line Hydraulic Swing Hoist:	2000 lbs Double Line
1500 Double Line Hydraulic Swing Hoist:	1500 lbs Double Line

All rating are with 200ft of cable on hoist winch.
All Seasons Equipment recommends counterweights equaling 1 1/2* times the lifting weight of the load.

*Ontario Regulations for Construction Projects (210.d, O.Reg 213/91, s.210) allow for counterweights 1.25 times the lifting weight of the load. Check your local regulations for possible reductions in ballast requirements.

1. Operators must be thoroughly trained before operating this hoist. A trained person is one who is though familiar with the safety features, design capabilities, use and operation of the machine and this manual .
2. Prior to setting up this hoist there must be a plan of action outlining the work to be accomplished, individual responsibilities, personal protective equipment and method of communication.
3. A good line of communication must be maintained between the hoist operator and the ground crew. Walkie-talkies, cell phones or other methods of voice communication should be used whenever possible. At the very least hand signals.
4. Follow the pre-hoisting check list before operating
5. Use only ASE approved solid steel ballast blocks or factory approved equivalent as counterweight. Never use roofing process materials or pourable materials as a counterweight.
6. Maintain 1 ½ lbs of counterweight for every pound being lifted by the hoist. This is a general specification, different regions have different regulations may require have lower ballast requirements. Eg. Ontario Regulations for Construction Projects (210.d, O.Reg 213/91, s.210) allow for counterweights 1.25 times the lifting weight of the load.
7. Wear heavy gloves when handling wire rope.
8. Wear safety footwear and head protection while either operating the hoist or working in its vicinity.
9. All personnel shall be protected by a safety harness and life line or guardrails as required by OSHA, when handling loads at the roof edge.
10. Never use the hoist structure to anchor life lines, workers' harnesses or other attachments.
11. The hoist operator must stand behind the operator fence while the hoist is operating.
12. Ensure that the hoisting are is clear of power lines. Consult the power company before hoisting near power lines.
13. The hoisting area is to be kept clear of unauthorized personnel at all times. Place barricades or secure the area in such a manner that if there were equipment failure that no personnel would be injured.
14. Keep out from under a raised load.
15. Never hoist over an open doorway
16. Avoid sudden stops and shock loads

17. All hoisting accessories such as forks, buckets and slings must be commercially manufactured.
18. All hooks, slings, shackles and other hoisting accessories must be properly maintained and installed.

19. Secure the load before lifting
20. Tag lines shall be used to control all loads.
21. No person shall be allowed to ride on the hoist.
22. Do not clime the hoist frame, use only a step ladder. Do not use an extension ladder.
23. Check the hoist periodically during operation.
24. Do not disconnect the hydraulic hoses or fittings while the hydraulic power pack is running.
25. Do not attempt to make adjustments while the host is being operated.
26. Keep all body pars clear of moving parts.
27. At the end of operation the hoist should be secured to prevent unauthorized use. Never assume you wil find the hoist in the same condition in which you left it.
28. Do not weld or otherwise modify the hoist. Such alterations may weaken the structural integrity of the hoist.
29. Only trained personnel are authorized to do repairs
30. Do not operate the hoist under the influence of drugs, alcohol or medication.
31. Do not exceed the rated capacity of the hoist
32. Inspect the cable before each use. Never operate the hoist with damaged cable. Use only galvanized aircraft cable as replacement cable. See attached cable specifications.
33. Do not start the engine until after the hydraulic hoses are connected. Make certain all connecting pins and hardware on the frame components are tightened securely before operating the hoist.
34. Use guardrails on each side of access point at the roof edge. Avoid reaching over roof edge.
35. It is the responsibility of the owner, or his representative, to ensure that all safety decals are in place and are legible as well as making this manual available to the machine operator. If any decals become illegible contact All Seasons Equipment for immediate replacement.
36. Handle only stable or safely arranged loads.
37. Do not wrap hoist cable around load. The load must be attached by lift rings, pallet forks, slings or other suitable means.
38. "The load shall be well secured and properly balanced in the sling or lifting device before it is lifted before than a few inches." - OSHA standards
39. If the battery is removed, do not operate the engine without insulating the positive (+) battery cable terminal with electrical tape, otherwise sparking could result.
40. Use caution when handling fuel. Gasoline is very flammable.
41. Use the cable weight (supplied with hoist) to maintain cable tension when operating without a load.
42. Grease pulleys daily to prevent freeze up and wear. Replace worn or damaged pulleys.
43. Cable end fittings and cable clips are potential problem areas. Inspect them regularly. Repairs should be made by a qualified service person.

It is usually a good idea for the employer to keep a record of all safety and health training, records can provide evidence of the employer's good faith and compliance with OSHA standards.
Documentation can also supply an answer to one of the first questions an accident investigator will ask "Was the injured employee trained to do the job?"

Training in the proper performance of a job is time and money well spent, and the employer might regard it as an investment rather than an expense. An effective program of safety and health training for workers can result in fewer accidents and illnesses, better morale, and lower insurance premiums, among other benefits.

Hoist Specifications:

1500 Double Line Hydraulic Swing Hoist

	USA	Canada
Hoist Capacity	1500lbs Double Line 1000lbs Single Line	680kg 454kg
Hoist Speed	80ft/min Double Line 160ft/min Single Line	24mpm 48mpm
Hoist Cable Supplied	200ft 1/4" Cable	60m
Hoist Cable - Maximum Capacity	1000ft 1/4" Cable	305m
Boom Overhangs Roof	5ft	1.524m
Maximum height under Hook to Roof Deck		
Frame Weights:		
Counterweight Boom	170lbs	78kg
Swing Boom	110lbs	50kg
Front Vertical Frame	155lbs	71kg
Lower Telescopic Support	15lbs	7kg
Safety Fence	15lbs	7kg
Cylinder Support Frame	25lbs	12kg
Hydraulic Cylinder	25lbs	12kg
Hydraulic Winch	170lbs	78kg
Hydraulic Power Pack	380lbs	173kg
Required Ballast (1.5 times Load*)	max 2250lbs	max 1020kg

2000 Double Line Hydraulic Swing Hoist

	USA	Canada
Hoist Capacity	2000lbs Double Line 1500lbs Single Line	908kg 680kg
Hoist Speed	80ft/min Double Line 160ft/min Single Line	24mpm 48mpm
Hoist Cable Supplied	200ft 1/4" Cable	60m
Hoist Cable - Maximum Capacity	1000ft 1/4" Cable	305m
Boom Overhangs Roof	5ft	1.524m
Maximum height under Hook to Roof Deck		
Frame Weights:		
Counterweight Boom	170lbs	78kg
Swing Boom	110lbs	50kg
Front Vertical Frame	155lbs	71kg
Lower Telescopic Support	15lbs	7kg
Safety Fence	15lbs	7kg
Cylinder Support Frame	25lbs	12kg
Hydraulic Cylinder	25lbs	12kg
Hydraulic Winch	170lbs	78kg
Hydraulic Power Pack	380lbs	173kg
Required Ballast (1.5 times Load*)	max 3000lbs	max 1360kg

*Ontario Regulations for Construction Projects (210.d, O.Reg 213/91, s.210) allow for counterweights 1.25 times the lifting weight of the load. Check your local regulations for possible reductions in ballast requirements.

2000 Single Ling Hydraulic Swing Hoist

	USA	Canada
Hoist Capacity	2000lbs Single Line	908kg
Hoist Speed	200ft/min Single Line	60m/min
Hoist Cable Supplied	200ft 5/16" Cable	60m
Hoist Cable - Maximum Capacity (5/16 Cable)	500ft +	152m +
Boom Overhangs Roof	5ft	1.524m
Maximum height under Hook to Roof Deck		
Frame Weights:		
Counterweight Boom	170lbs	78kg
Swing Boom	110lbs	50kg
Front Vertical Frame	155lbs	71kg
Lower Telescopic Support	15lbs	7kg
Safety Fence	15lbs	7kg
Cylinder Support Frame	25lbs	12kg
Hydraulic Cylinder	25lbs	12kg
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*Ontario Regulations for Construction Projects (210.d, O.Reg 213/91, s.210) allow for counterweights 1.25 times the lifting weight of the load. Check your local regulations for possible changes in ballast requirements.

Prior to Setup

1. If the unit is new from factory, cut the banding and separate the parts. Remove the shipping protection and check all members for damage during transport. Do not use the hoist if any frame members are bent or have broken welds.

WARNING:

ENSURE ALL STRUCTURAL MEMBERS FOR THE HOIST ARE FREE OF DEFECTS AND DAMAGE THAT MAY EFFECT THE INTEGRITY OF THE UNIT.

2. Hoist installation and setup cannot proceed until all necessary parts and equipment have been raised to the roof deck where the hoist operations will be done. Use a hoist beam, swing beam, freight elevator or crane for this purpose.

WARNING:

ENSURE THE HOISTING AREA IS SECURED FROM ALL UNAUTHORIZED PERSONNEL. ENSURE THAT OSHA APPROVED ROOF TOP BARRIERS ARE IN PLACE.

WARNING:

A COMPETENT PERSON MUST DETERMINE THAT THE STRUCTURAL DECK CAN SUPPORT THE INTENDED LOADS IN HOISTING AND MATERIAL HANDLING IN ADDITION TO THE WEIGHT OF THE COUNTERWEIGHT ON THE ROOF DEC. FAILURE TO DO THIS CAN RESULT IN DEATH, SERIOUS PERSONAL INJURY OR EQUIPMENT FAILURE.

WARNING:

PRIOR TO SETTING UP THE HOIST THERE MUST BE A PLAN OF ACTION OUTLINING THE WORK TO BE ACCOMPLISHED, INDIVIDUAL RESPONSIBILITIES, PERSONAL PROTECTIVE EQUIPMENT, AND THE METHOD OF COMMUNICATION. FAILURE TO DO THIS CAN RESULT IN DEATH, SERIOUS PERSONAL INJURY OR EQUIPMENT FAILURE.

Setting Up the Hydraulic Swing Hoist on the Job

Lower height jobs:

Lifting the Frame onto the Roof

1. Position frame and power units close to the location where they are going to be raised to the roof top.
2. You need at least three men, on the ground to tie and guide parts and two on the roof top to pull parts up.
3. The frame must be placed approximately 20-30 FT from the roof deck for assembly.

Raising the Power Unit:

** Using Hand Winch **

1. Install the hand winch in place of the hydraulic winch on the hoist frame.
   Always ensure that sufficient ballast is installed on the hoist frame before lifting the power unit.
2. Unwind enough cable to go under guide pulley #12 and over swing pulley #1.
3. Slide the frame to the edge of the roof.
4. Lower the cable to ground level and attach the power pack or winch to the end of the hoist cable.

NOTE: Make sure that there are at least 700 lbs of counterweights installed on the hoist counterweight base before lifting the power unit

5. Hoist up power pack or winch using the hand winch.
6. To swing the load in, remove Pin #15 from the swing cylinder and swing the boom in manually.

High-rise Building Jobs:

The frame on the ASE swing hoist can be easily disassembled to fit into elevators for quick and safe transportation to the roof deck.

Frame Assembly

1. Attach the two parts of the rear frame (#3) together using the bolts provided and welded nuts.
2. Attach the two parts of the vertical frame (#4) together using the bolts provided and welded nuts.
3. Lay the vertical frame (#4) down onto the ground. Insert the two axles of the swing boom (#2) into the tubes (#13) on the vertical frame.
4. Lift the vertical frame and swing boom into an upright position. While two men hold this frame upright another will attach the rear frame (#3) to bracket on the top tube (#13) and insert pin (#21) and lock pin (#16).
5. Install the bottom telescopic tubes (#6, #7) into the brackets shown in Fig. #1 and insert pins (#8, #9), nor forgetting lock pins (#16)
6. Place the hydraulic swing cylinder arm (#5) on the bottom swing tube bracket and insert pins (#10, #11) and lock pin (#16). Slide tube (#19) may be adjusted by sliding up or own on rear leg (#3).
7. Place the swing cylinder (#18) on arm (#5), insert pin (#17, #16). The hydraulic cylinder shaft rod end is inserted into the swing boom (#2) bracket and pins (#15, #16) are inserted to retain it in place.
8. Install the safety fence (#25) on the vertical frame

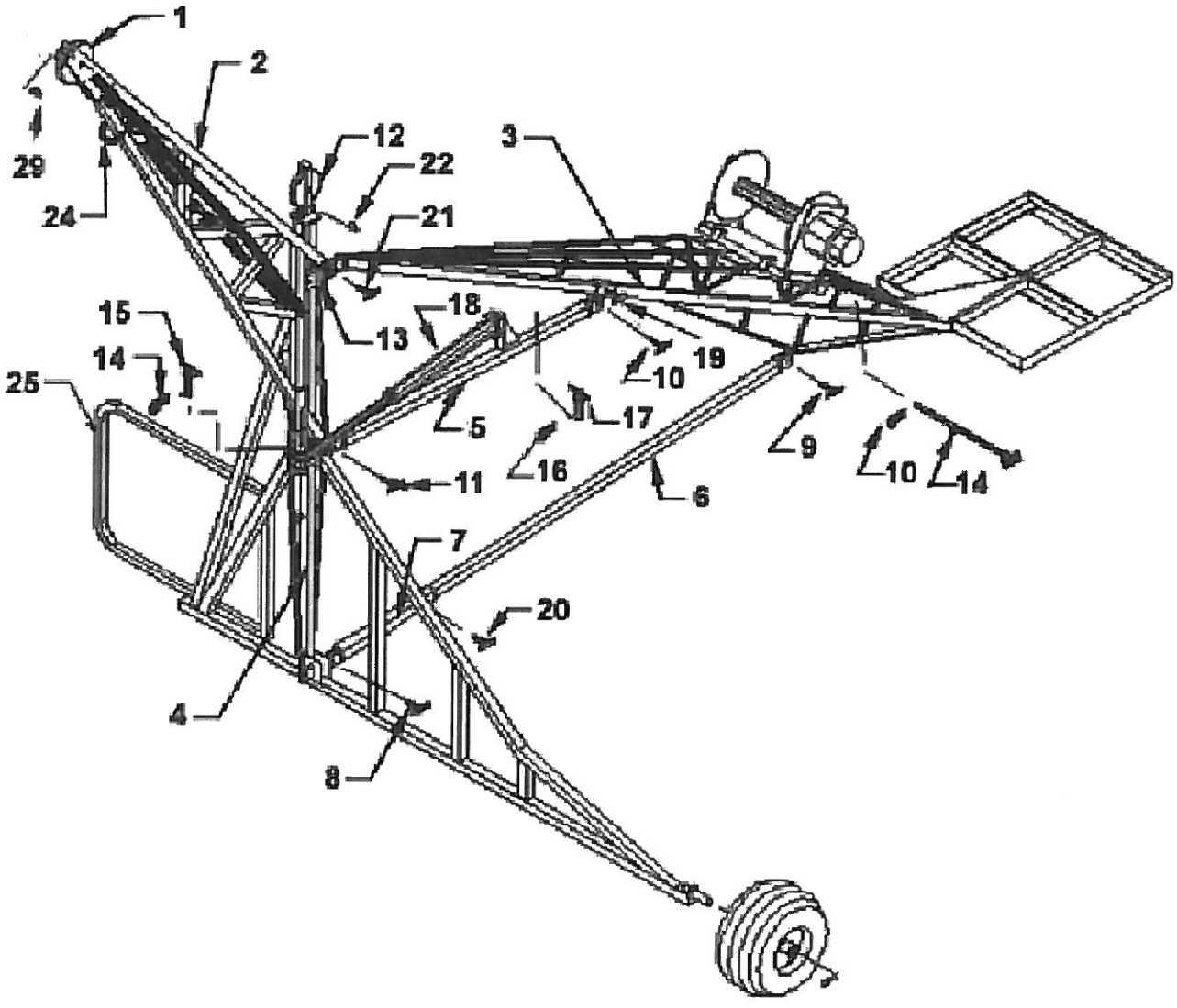


Figure 1

Installing/Connecting the Power Unit and Power Pack

1. Position the hydraulic winch into the retainer brackets on rear frame leg #3
2. Insert pin #14 through the rear frame brackets and tubes at the back of the winch, then insert safety pin #16.
3. Our gas power pack comes equipped with four 9ft hoses which have quick couplers on one end. The three larger quick connects are to be attached to the hydraulic winch unit.

NOTE: The quick couplers are all different sizes. It is impossible to connect them in the wrong position.

4. Now you have two remaining hoses to connect. These are the hoses with the two smallest quick connect couplings. These connect to the hydraulic cylinder #18.

NOTE: When the hydraulic hoist is not in use or being transported, the hydraulic cylinder shaft should always be retracted to prevent damage to the shaft.

5. After all hoses are connected start the gas engine. (Follow the starting procedures enclosed in the engine manual)
6. Accelerate the engine slightly above idle
7. You must unwind some cable from the winch, approximately 30 feet so that you can place it in the pulleys. To unwind the cable you must push lever #1 in Fig. 2, on the power unit backwards (Position A) slowly. This will unwind cable. (Have a person help with the unwinding to prevent the cable from tangling
8. Remove the safety pin #22 from the guide pulley #12 and run cable through the bottom as shown in drawing #1, replace safety pin #22.
9. Now remove safety pin #29 from swing frame pulley #1 and run the cable on top of the pulley groove. Insert safety pin #29.
10. It is a good idea to place some kind of weight on the end of the cable just above the hook to keep it straight when lifting weight..

Running the Hoist with Double Line Cable

WARNING: These instructions are to be used ONLY for the 1500 Double Line and 2000 Double Line Hydraulic Swing Hoists. If these instructions are used on a 2000 Single Line Swing Hoist then the lifting capacity will exceed the designed safety factors of the hoist frame and could result in frame failure.

1. Remove the pulley, cable counterweight and shackles from the end of the cable block
2. Reeve the cable through the horizontal cable block, and reattach hook.
3. Fasten the hook to the to the loop #24 on the swing hoist boom
4. Use the hook located on the bottom of the horizontal cable block for all lifting. The hoist will now lift an increased amount of weight at approximately half of the lifting speed.

CAUTION: Always inspect cable, hoist pulleys and cable blocks for damage before lifting any kind of weight. The cable should be free of any broken strands or unraveling. Cable blocks and pulleys should roll freely without cable slipping over.

Safety Instructions

1. After hoist is assembled make sure that all pins on the frame and power unit are properly placed and locking pins are in place.
2. **IMPORTANT** Verify that all nuts and bolts on the frame are properly fastened. If loose, for your safety and that of others make sure they are all tightened before operating the hoist.
3. The fence on the vertical frame must be swung outward, to protect the operator from accidentally walking off the roof edge while operating the hoist.

Caution: Always be sure to have enough counterweights on the rear weight base, use at least 1 ½ times the weight you are lifting. Ex. If you are lifting 1500lbs then use 2250lbs of counterweight on the base. Also make sure the counterweights blocks are properly placed and fastened on base so that they are not accidentally removed or fall off. Always use proper counterweights and not building materials when operating any hoist.

Caution Always keep in mind the maximum rated load on hoist you are using

	2000 Single	2000 Double	1500 Double
Double Line Capacity with 200 ft Cable	---------	2000 lbs	1500 lbs
Single Line Capacity with 200 ft Cable	2000 lbs	1600 lbs	1000 lbs

4. Check the hoist cable for broken strands, if any are found the cable should immediately be replaced before operating.
5. Check the hoist braking system for proper operation, always test the hoist with a small amount of weight before lifting heavy objects.
6. Grease all moving parts on the hoist frame regularly. Failing to grease bearings and pulleys is the leading cause of machine failure.
7. The hydraulic oil level must be checked every day before operation, if the oil level is too low top it up with 10W 40 Motor Oil.
8. If the hydraulic oil is repeatedly low check for leaks in the system and repair immediately.
9. Engine oil should be checked daily before starting. For all other engine maintenance refer to the engine manual.

Hydraulic Power Pack

1. Lifting and Lowering Load Control
   - Push lever forward to position B to lift material (or wind cable)
   - Pull lever backward to position A to lower material (or unwind cable)

2. Swing Cylinder Control
   - Push lever forward to position B to swing the lift boom in towards the roof top.
   - Pull lever backwards into position A to swing lift boom out over the roof edge.

WARNING: Operate all controls slowly for safety and to increase the life of the machine

3. Lifting Hook - Attach cable here when lifting
4. Return Hydraulic Filter
5. Hydraulic Tank Filler Tube
6. Oil Level Gauge

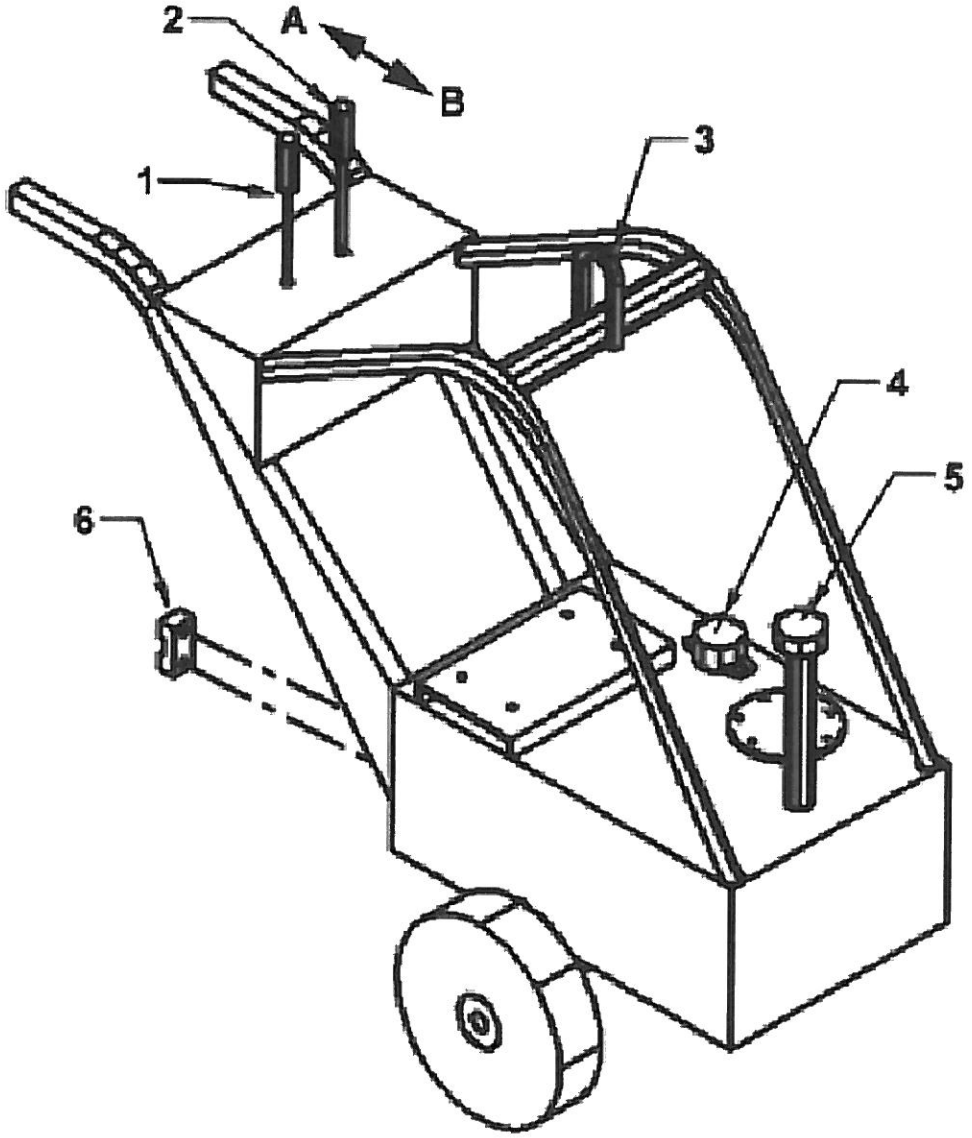


Figure 2

Maintenance

Maintenance Chart

	Each Use	8 Hours	25 Hours	50 Hours	100 Hours	200 Hours	400 Hours
Check Hydraulic Fluid Level	Initial		√				
Change Hydraulic Fluid							√
Change Hydraulic Oil Filter			√				
Check Hydraulic Lines					√		
Check Engine Oil Level (Gasoline)	√						
Change Engine Oil (Gasoline)			√				
Change Engine Oil Filter (Gasoline)			√				
Grease Frame	√						
Service Air Cleaner (Gasoline)				√			
Replace Air Filter (Gasoline)						√	
Check Spark Plugs (Gasoline)					√		
Replace Spark Plugs (Gasoline)						√	
Check Battery Electrolyte (Gasoline)			√				
Charge Battery (Gasoline)	Initial						
Replace Fuel Filters (Gasoline)						√	
Inspect Hoist Pulleys	√						
Inspect Hoist Cable	√						
Check Engine Rotation	√						

Check the Hydraulic Fuel Level

The hydraulic tank is an integral part of the unit's main frame. Fluid levels are monitored with an oil level gauge. This Level Gauge is located on the rear of the hydraulic tank near the operator's feet.

Before the Engine is first started and after 25 Hours of operation check the hydraulic fluid level.

This machine is designed to use high quality 10W40 Oil. In high temperature situations 20W50 oil can be used to increase machine performance.

Hydraulic Tank Capacity is : 20 gallons (75.7 Litre)
Before checking the oil level ensure that the unit is parked on a level surface with the lift arms lowered, the engine off and the key removed.

Changing the Hydraulic Oil

Change the Hydraulic Oil after 400 operating hours

1. The unit should be parked on a level surface, unloaded, with the engine off and the key removed.
2. Place a drain pan under the drain plug that will hold at least 20 gallons (75 Litres).
3. Remove the drain plug. Allow the fluid to completely drain out.
4. Reinstall the drain plug.
5. Fill the hydraulic tank with approximately 18 Gallons of 10W40 oil. It is very important to use a high quality oil with few impurities.

NOTE: Dispose of used oil at a certified recycling centre.

Change Hydraulic Filters

The Hydraulic Swing Hoist oil return filter element should be replaced after 100 hours of operation. There is also a steel suction strainer that should be blown out with compressed air, or washed with light oil every 100 hours of operation.

Check Hydraulic Lines

Check the hydraulic lines after every 100 hours of operation. Inspect for wear, cracks, loose connections, leaks, etc. If hydraulic components require service, remove all loading, stop engine and move all hydraulic controls in both directions to release any hydraulic pressure before any disassembly. Repair hoses as needed. Hydraulic hoses should be replaced as wear dictates.

WARNING: HYDRAULIC FLUID UNDER PRESSURE can penetrate skin and cause severe burns that can result in death or serious injury.

ALWAYS keep body and hands away from pin holes or nozzles which eject hydraulic fluid under pressure. ALWAYS use paper or cardboard and not hands to search for leaks.

KNOW that all hydraulic fluid connections and all hydraulic hoses and lines are in good condition BEFORE applying pressure to the system.

Foreign fluid injected into skin must be surgically removed within a few hours by a doctor familiar with this form of injury or gangrene may result.

Check Engine Oil Level (Gasoline Model Only)

Check engine oil level before each use. See Engine Manual for detailed instructions.

Change Engine Oil (Gasoline Model Only)

Change oil after every 25 operating hours. Change more frequently when operating conditions are extremely dusty. See engine manual for detailed instructions.

The engine has a drain hose permanently attached to the engine

Change Engine Oil Filter (Gasoline Model Only)

Replace the oil filter after the first 25 hours of operation and every 50 hours thereafter. See the Engine Manual for detailed instructions.

Service Air Cleaner (Gasoline Model Only)

The foam element should be cleaned after every 50 operating hours.
The paper element should be replaced after every 200 operating hours.
Under extremely dusty or sandy conditions, the elements should be serviced several times a day. See the engine manual for detailed instructions.

Check the Spark Plugs (Gasoline Model Only)

Inspect the spark plugs after every 100 operating hours. Refer to the engine manual for spark plug service.

Replacing the Fuel Filter (Gasoline Model Only)

Replace the fuel filter once every year or after 200 operating hours, whichever occurs first. Never re-install a dirty filter. See the Engine Manual for detailed instructions.

Check Battery Electrolyte (Gasoline Model Only)

Battery Electrolyte First Aid

External Contact Flush with water.

Eyes: Flush with water for at least 15 minutes and get medical attention immediately.

Internal Contact: Drink large quantities of water. Follow with beaten egg or vegetable oil. Get medical attention immediately

WARNING: In case of internal contact do **NOT** induce vomiting

Checking the Electrolyte Level

Check the battery electrolyte level every 25 hours. Always keep the battery fully charged and clean. If the battery terminals are corroded, clean the with a solution of water and baking soda. Under normal operating conditions the battery fluid levels may drop. To bring the fluid up to the required level, add distilled water.

1. Clean the top of the battery and remove the filler caps.
2. Remove cell caps and check the electrolyte level in each cell. The level should be even with the bottom of the fill tubes. Interior plates must be covered.
3. Add distilled water as needed to bring each cell up to full level.
4. When the electrolyte decreases rapidly, check the charging system for overcharging.
5. Periodically check each cell for the correct specific gravity. After adding distilled water, charge the battery up by operating the engine, and then check the specific gravity.
6. Replace filler caps. Clean up spills with water and paper towels.

WARNING: ELECTRIC SHOCK may result in injury and/or damage to the unit.
DO NOT allow tools or other objects to come into contact with both terminals at the same time.
ALWAYS remove the Negative (-) cable first to reduce the risk of sparks when removing the battery.

ALWAYS connect the Positive (+) cable first, then connect the Negative (-) cable.

WARNING: EXPLOSIVE GASSES can result in serious injury or death.
ALWAYS keep open flames, sparks, or smoking materials away from battery.
POISONOUS BATTERY FLUID contains sulfuric acid and its contact with skin, eyes or clothing can cause severe chemical burns. ALWAYS wear safety glasses and protective gear near battery.
DO NOT TIP any battery beyond 45° angle in any direction.
ALWAYS KEEP BATTERIES OUT OF REACH OF CHILDREN

WARNING: Battery posts, terminals and related accessories contain lead and lead compounds, chemicals known to the State of California to cause cancer and reproductive harm. Wash hands after handling.

WARNING: REVERSE CONNECTIONS may result in sparks which may cause injury. ALWAYS connect/disconnect cables in the proper order.

Hoist Cable

The hoist cable should be checked for broken or twisted strands before operating. The operator should also maintain a watch on the cable through the day, stopping the unit if broken strands are detected.

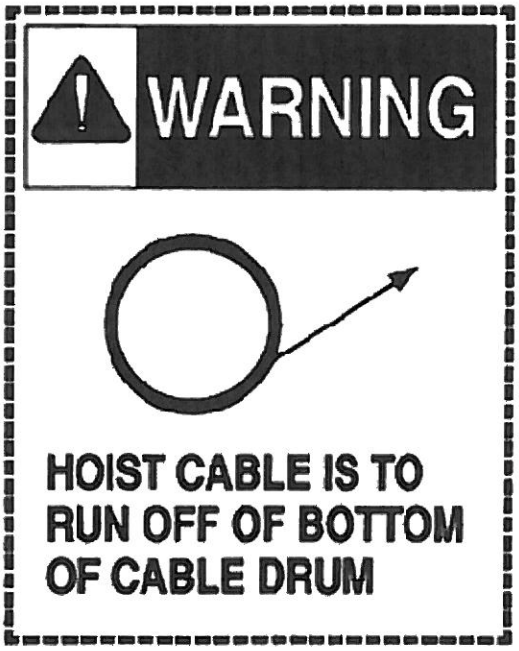
Replacing the hoist Cable

1. Spool the cable completely off of the hoist.
2. Remove the bolt attaching the cable to the side of the drive drum
3. Attach the new cable using the same mounting bolt
4. Check to make sure that the bolt is screwed in properly, if the bolt head is sticking out too far it can interfere with the winch frame or bearing causing damage to the unit and presenting a safety hazard.
5. When spooling the cable onto the hoist ensure the cable is being spooled in the correct direction. The cable should come off the bottom of the drum and up the frame.

WARNING: If the cable is installed in the incorrect direction the unit breaking system will not operate properly posing a significant risk to the machine and people in the work area.

For 1500 Double Line and 2000 Double Line
Hydraulic Swing Hoists 1/4" - 7x19 Construction galvanized aircraft cable should be used. Please see the attached mill certification for the exact specification on the cable used by All Seasons Equipment

For 2000 Single Line Hydraulic Swing Hoists 5/16" - 7x19 Construction galvanized aircraft cable should be used. Please see the attached mill certification for the exact specification on the cable used by All Seasons Equipment

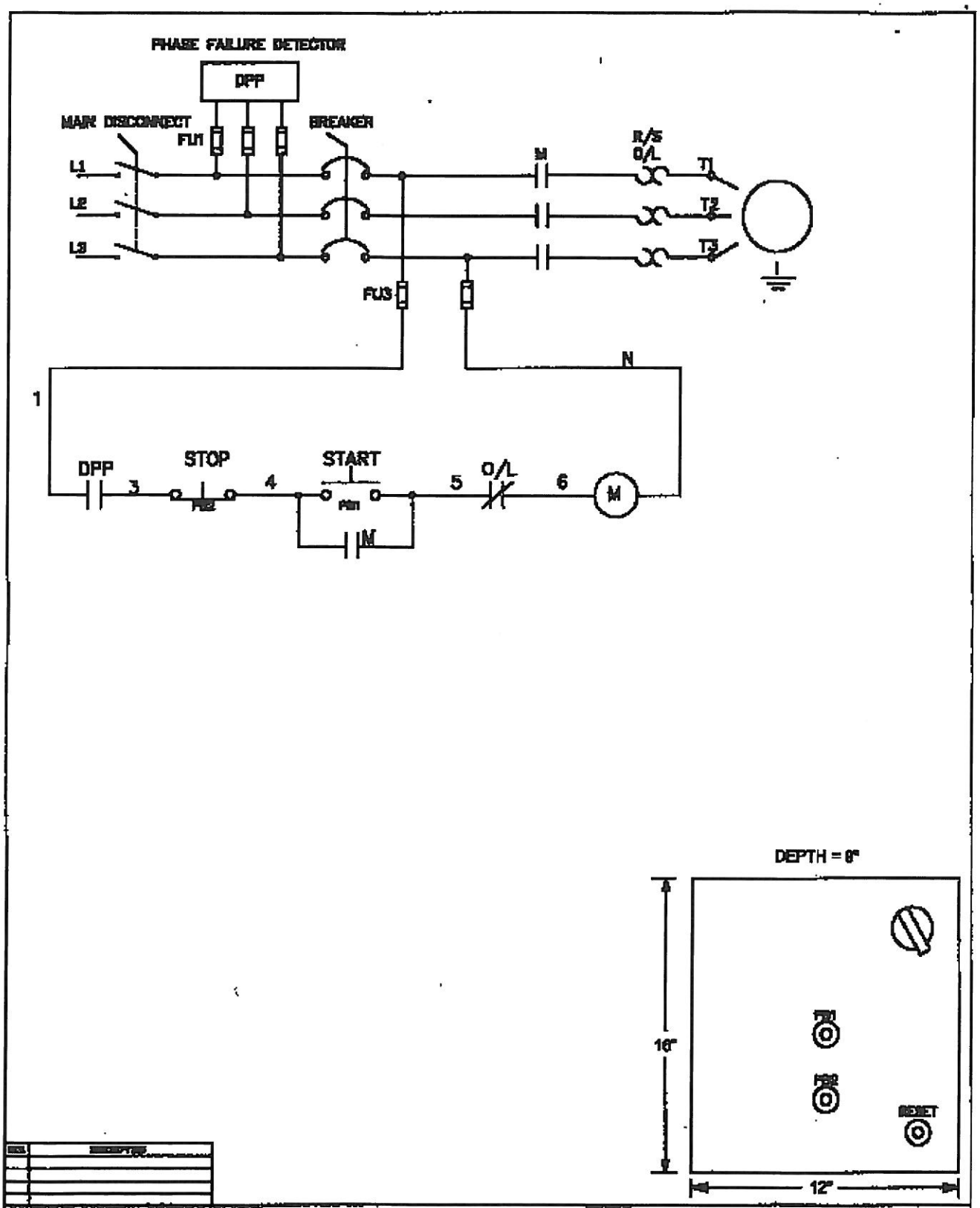


Hoist Pulleys

The grease fittings in the bolts mounting the pulleys should be greased daily. When this greasing is being done the operator should inspect the pulleys for wear. A typical sign of dangerous wear is a flat spot being worn into one edge of the pulley, this indicates that the pulley had stopped rotating and the cable had run over the surface.

During a lift the cable is under a large amount of stress and is extremely tight, by running over a pulley without it rotating it can easily cut the pulley in half. The operator should keep an eye on the pullets while operating the hoist. If a pulley ceases to rotate the unit should be stopped immediately and the pulley inspected.

Electric Powered Hoists - Control Box Schematic



Electrical Basics

The electricity that powers your All Seasons Equipment hoist is as important as the hoist itself. Electricity is more then one thing.

CHARGE is a group of particles gathered together. Charge can flow and build up pressure, which is called VOLTAGE. The greater the voltage, the more charges flow. The measurement of charge is called AMPERAGE. Limiting the flow of charges ins RESISTANCE.

Let us compare electricity to water. Everyone can understand/imagine water passing through a faucet and hose.

> The levels of PRESSURE in the pipe is equivalent to VOLTAGE
> the amount of (volume) WATER flowing can be associated with AMPERAGE
> the FAUCET and the SIZE of hose associated to the power supply and the length and gauge of electrical cable, effecting RESISTANCE.

The voltage at your electrical outlet mat be 110 volts or 220 volts with no motor plugged in or even when a couple of pieces of equipment are plugged and running but ... Just like with your plumbing, if there are two people taking a shower, a shish washing machine on the rinse cycle, the lawn sprinkler sprinkling, and so on, then the PRESSURE will be less for all of the water faucets.

Electrical power in North American cities is not always perfect. When a couple of pieces of equipment are plugged into one circuit, and drawing a high AMPERAGE, the VOLTAGE will drop. The VOLTAGE (PRESSURE) will not always remain unchanged, it will decrease. How badly it drops depends on your electrical power company, specific wiring to that job sire and the length and type of extension power cable (HOSE SIZE) being used.

What about the FAUCET (RESISTANCE)? If your faucet is rusted, corroded or small, or if the faucet is a long distance from the source, the water PRESSURE is not going to be as strong as you would like? Likewise with electricity, if your electrical connections are not good or the electrical extension cable is too lightweight or the length of your electrical cable is excessive, or any combination of these circumstances, then the VOLTAGE at the hoist may be too little to lift your load.

All Seasons Equipment electrical powered Hydraulic Swing Hoists are high energy hoists and can lift large loads at high speeds, but this requires a large amount of AMPERAGE (WATER volume) and therefore a lot of continuous VOLTAGE (PRESSURE). The greater the load, the more AMPERAGE necessary.

Appendix A - OSHA Specifications in Roofing

Standard Railings and Toeboards (Article 16).

Parapets at least 24 inches high; except that at those job sites where felt-laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides is being used, the provisions of this subsection shall not apply provided that the parapet is 36 inches or more in height at those roof edges which are perpendicular (or nearly so) to the direction in which the equipment is moving.

(c) Slopes Greater Than 4:12--Single-Unit (Monolithic) Roof Coverings. Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the following methods:
- (1) Parapets, 24 inches or higher.
- (2) Safety Belts and Lines [Section 1724(f)].
- (3) Catch Platforms [Section 1724(c)].
- (4) Scaffold Platforms [Section 1724(d)].
- (5) Eave Barriers [Section 1724(e)].
- (6) Standard Railings and Toeboards (Article 16).

NOTE: The provisions of this subsection (c) do not apply under the following conditions:
At those job sites where motorized equipment on which the operator rides which has been designed for use on roofs of slopes greater than 4:12 is being used if the parapet is 36 inches or more in height at those roof edges which are perpendicular (or nearly so) to the direction in which the equipment is moving.

(d) Equipment Hazards on Sloped Roofs--Single-Unit (monolithic) Roof Coverings.
Equipment that is pulled by an operator who walks backwards shall not be used on a roof having a slope greater than 4:12.

(e) Slopes 0:12 Through 5:12--Multiple-Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by the use of a roof jack system as provided in Section 1724(a), a minimum of 24-inch high parapet, or other method affording equivalent protection.

(f) Slopes Greater Than 5:12--Multiple-Unit Roof Coverings. Employees shall be protected from falls from roofs that are of a height of more than 20 feet by one or a combination of the following methods:
- (1) A parapet at least 24 inches high.
- (2) Safety Belts and Lines [Section 1724(f)].
- (3) Catch Platforms [Section 1724(c)].
- (4) Scaffold Platforms [Section 1724(d)].
- (5) Eave Barriers [Section 1724(e)].
- (6) Roof Jack Systems [Section 1724(a)] (Safety lines shall be required in conjunction with roof jack systems on roofs steeper than 7:12)

NOTE: For purposes of Section 1730, the height measurement shall be determined by measuring the vertical distance from the lowest edge of the roof or eaves to the ground or level below. The height of parapets shall not be included in the roof height measurements.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1723. Application.

(a) The Orders contained in this Article are intended to apply to employees engaged in the removal or application of:

- (1) Single-unit (Monolithic) roof coverings which include built-up roofing of asphalt or coal-tar pitch or like materials, and flat-seam metal roofs or like materials, and
- (2) Multiple-unit roof coverings which include asphalt shingles, asbestos-cement shingles, standing-seam metal panels, shingle metal roofing, wood shakes and shingles, clay tile, concrete tile, slate or like materials.

(b) Applicable parts of this Article shall apply wherever kettles, tankers or pots with capacities in excess of 5 gallons are used in providing hot asphalt, pitch or like materials for construction or maintenance operations.

(c) When the work is of short duration and limited exposure, such as minor patching, measuring, roof inspection, etc., and the hazards involved in rigging and installing the safety devices required by this Article equals or exceeds the hazards involved in the actual construction, these provisions may be temporarily suspended provided that adequate risk control is recognized and maintained.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1724. Roofing--General.

(a) Roof Jack Systems (Includes Jacks, Planks and Appurtenances.)

(1) Roof jacks shall be constructed to fit the slope of the roof and be designed, fabricated and installed in such a manner that they will sustain all expected loads. The supported plank shall be positioned at some angle from perpendicular to the roof to horizontal. For suggested installation, see Appendix Plate C-19.

(2) Intervals (spans) between roof jacks shall not exceed 10 feet.

(3) When rope supports are used, they shall consist of first-grade Manila rope of at least 3/4-inch diameter or other material of equivalent strength.

(4) Wooden supporting members that span between jacks, as illustrated in Appendix Plate C-19, shall be selected lumber as defined in Section 1504(a), or equivalent and be of at least 2-inch by 6-inch material. Where supporting members other than wood are used they shall be of at least the equivalent strength.

(b) Crawling Boards.

(1) Crawling boards shall be not less than 10 inches wide and 1-inch thick, and shall have cleats of at least 1-inch by 1 ½-inch material. The cleats shall be equal in length to the width of the board and spaced at equal intervals not to exceed 24 inches. Nails shall be driven through and clinched on the underside of the board.

(2) Where building design permits, the crawling boards shall extend from the ridge pole to the eaves.

(3) A firmly fastened line of at least 3/4-inch diameter Manila rope, or equivalent, shall be laid beside each crawling board for use as a handhold.

(4) Crawling boards shall be secured to the roof by adequate ridge hooks or other effective means.

(c) Catch Platforms.

(1) When catch platforms are used, they shall be installed in close proximity below the eaves below roof work areas, extend at least 2 feet horizontally beyond the projection of the eaves, and be provided with standard railings and toeboards (See Article 16).

(2) The platforms shall be fully planked.

(d) Scaffold Platforms.

(1) When built-up scaffold platforms are used to protect workers from falls from the edges of roofs, they shall be installed and maintained in accordance with the provisions of Article 22, Scaffolds.

(2) A fully planked platform shall be provided near the eave level.

(e) Eave Barriers.

(1) When a system of eave barriers is provided to prevent falls from roofs, the barrier, unless of solid construction, shall be in accordance with the provisions of Article 16, Standard Railings.

(2) The barrier system shall be securely anchored at eave level or supported by ropes securely tied to substantial anchorages on the roof.

(3) If the barrier system is to be moved from one work area to another, employees performing the moving operation shall be protected by the use of safety belts and lines.

(f) Safety Belts and Lines.

(1) Where used to prevent workers from falling off roofs, safety belts and lines shall be installed and used in accordance with the provisions of Article 24, Safety Belts and Nets.

(2) Safety lines shall be attached in a secure manner to substantial anchorages on the roof.

(g) High-Lift Material Trucks. Standard railings and toeboards shall be provided on the open sides of the platforms of high-lift material trucks when the platform is used as a work surface, except when it is not feasible during loading or unloading operations at elevations 7 ½-feet or more above ground, floor or level underneath.

(h) Ramps and Runways.

(1) Ramps or runways erected and used exclusively for the purpose of loading or unloading roofing materials at elevations above ground, or other level below, not exceeding 20 feet in height shall be at least 40 inches in width. At those elevations exceeding 20 feet in height, standard guardrails shall be installed and maintained on both sides of the ramp or runway.

NOTE: A 10-inch wide horizontal opening is permitted between the railing and the ramp or runway platform.
NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1725. Handling of Buckets, Kettles and Tankers.

(a) Buckets containing hot asphalt or pitch shall not be carried on ladders.
(b) Not more than one bucket of hot asphalt or pitch shall be carried at one time by a worker on a roof having a slope ratio of 6 vertical in 12 horizontal (6:12) or steeper.
(c) Buckets used in carrying service shall be filled so that the liquid surface is not closer than 4 inches from the top. No other open container transporting hot asphalt or pitch shall be filled beyond 75 percent of capacity.
(d) An attendant shall be within 100 feet of a kettle or tanker at all times while the burner flame is on, with no ladders or similar obstacles forming a part of the route to be taken to reach the kettle or tanker. However, if the kettle or tanker is controlled by an operating thermostat, the above distance and route limitations do not apply, provided that
arrangements are made for needed service.

(e) A clear path, free of debris, shall be maintained between the kettle and the hoist or hand line.

(f) When moving the kettle on any public street or roadway, it shall be drained at least 5 inches below the splash rail.

(g) When in use, the LPG fuel container shall be installed in accordance with the provisions of Article 32, Oxygen, Acetylene and Fuel Gas.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1726. Asphalt and Pitch Kettles.

(a) The covers on kettles shall be constructed to close tightly.
(b) Kettles shall be equipped with adjustable supports for use in setting kettles so that they are prevented from turning over.
(c) Relief Valve. The fuel tank of every kettle that depends upon the pressure of power-pumped (machine compressed) air for fuel delivery shall be equipped with a spring-loaded relief valve set to pop at a pressure not to exceed the maximum safe working pressure of the vessel, but in no case greater than 60 pounds per square inch.
(d) A Class BC fire extinguisher shall be kept near each kettle in use. Extinguisher capacity shall be at least as follows:
Less than 150 gallons..... 8:B.C.
150 to 350 gallons..... 16:B.C.
Larger than 350 gallons..... 20:B.C.
(e) An extension handle of sufficient length to permit safe closing of a stuck spigot shall be accessible near the kettle at all times.
(f) Kettle and tanker pumps shall be provided with a means of stopping the flow of hot asphalt or pitch manually from the roof top in emergencies when an attendant is not provided within 100 feet horizontally or 20 feet vertically from the kettle or tanker.
(g) Pumper pipelines shall be securely fastened at roof top and shall not be supported by ladders used for access.

(h) Kettles shall have the following safety features:
(1) A fluid level indicator, such as a dipstick, that will indicate the level of liquid asphalt or pitch within the kettle without the necessity of opening the lid for direct observation.

(2) Vents providing a total open area of not less than 100 square inches for up to 200 gallons capacity and

not less than 200 square inches for kettles of larger capacities.

NOTE: See Sections on LP-Gas use, Article 32.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1727. Kettles Mounted and Used on Elevated Truck Beds.

(a) Platforms shall be designed and constructed to:
  (1) Carry imposed load without excessive tipping or distortion.
  (2) Provide a clear work area at least 4 feet wide at the accessible sides and ends of the kettle, including an unobstructed 4-foot passageway between the kettle spigot and the roof.
  (3) Provide a noncombustible platform or platform covering.

(b) An access ladder to the platform must be provided. This ladder shall be fixed or be provided with an easily engaged attachment bracket that will prevent ladder slippage. Ladder rails must extend 3 feet above the platform, unless adequate handholds above the platform are provided.

(c) Railings shall be provided around the edges of the platform in accordance with the provisions of Article 16, Standard Railings.

(d) The platform shall be kept reasonably free from asphalt or pitch drippings.

(e) Kettle covers shall be closed when the truck is in motion.

(f) Kettles shall be securely attached to the platform so they will not shift or tip.

(g) Kettle burners must be extinguished when the truck is moving.

(h) No riders are to be allowed on the elevated platform while the truck is in motion.

(i) Platforms which can be raised and lowered shall be locked in place when in an elevated position.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1728. Handling Coal Tar Pitch.

(a) When coal tar pitch is being handled, suitable skin protection substances shall be readily available at the job site for the use of workers, and workers shall be instructed in its use in accordance with Section 1510.

(b) Suitable respiratory and eye protection shall be readily available to workers handling coal tar pitch in confined spaces where ventilation is inadequate to promptly dissipate the fumes and vapors.

(c) Suitable washing or cleansing facilities shall be available for use on exposed skin surfaces of those handling coal tar pitch.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1729. Hot Asphalt and Hot Pitch Buckets and Gallows-Type Frames.

(a) Hot Asphalt and Hot Pitch Buckets.
  (1) Every hot asphalt and hot pitch bucket shall be made of No. 24 gauge or heavier sheet steel and shall have a metal bail of 1/4-inch diameter or larger material. The bail shall be fastened to offset ears, or equivalent, which have been riveted, welded, or otherwise securely attached to the bucket.
  (2) Mop buckets shall not have a capacity in excess of 9 ½ gallons.
  (3) Mop buckets shall not be used as carrying buckets.
  (4) Carrying buckets shall not have a capacity in excess of 6 gallons.

(b) Gallows-Type Frames.
  (1) Gallows-type frames shall be made of "selected lumber," or material of equivalent strength, firmly bolted or nailed together and may be job site fabricated or a manufactured assembly. Construction may be as illustrated in Plate C-18, Appendix, or alternate designs may be used provided equivalent or greater strength is afforded.
  (2) Gallows-type frames shall be securely tied back to solid construction on the roof at all times while in use or in the case of designs incorporating counterbalancing means, shall be counterbalanced with items or materials which will not be used in performing the work which is being done during the period the hoist is being used.
  (3) If a tieback is used, the tieback shall be of Manila rope not less than 3/4-inch in diameter, or equivalent, tied securely to the tailpiece, stretched tight and lashed to an object on the roof suitable to provide secure anchorage to hold the frame in place when loaded.

(4) Gallows-type frames are for single line hand use and muscle power only. Any attachment of a power system, winch, hoist, or blocks is prohibited.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

1730. Roof Hazards.

(a) During roofing operations the employer shall comply with the provisions of Section 1509 and employees shall be trained and instructed in accordance with the provisions of Section 1510 of these orders.

(b) Slopes 0:12 to 4:12–Single-Unit (Monolithic) Roof Coverings.

(1) Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the methods in this section. Whenever felt laying machines or other equipment that is pulled by an operator who walks backwards is being used, this provision shall apply regardless of the height.

(2) Warning lines consisting of rope, wire or similar material, flagged with highly visible material hanging from the warning lines at approximately 6-foot intervals, shall be installed 34 to 45 inches above the roof surface to warn employees that they are approaching the edge of the roof.

(A) The stanchions (portable or fixed) supporting the warning lines shall be designed and installed to minimize tip over or displacement under normal working conditions.

(B) Warning lines shall have a minimum tensile strength of 500 pounds.

(C) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(3) Unless conditions prohibit, headers consisting of sheets of roofing or other roofing materials shall also be laid parallel to the edges of the roof to warn employees that they are approaching the edge of the roof.

(4) The warning lines and headers shall be placed no closer than 5 feet from the roof edge.

(5) When using felt-laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides, the headers shall be placed no closer than 10 feet and the warning lines shall be placed no closer than 5 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving and when conditions prohibit the use of headers, the warning lines shall be placed no closer than 10 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving.

(6) The warning lines and headers shall be erected either around the complete perimeter of the roof or only in areas of the roof where work is being accomplished, so long as the warning lines and headers are moved as the work progresses in such a manner as to provide continuous warning to employees in the work area when they approach the roof edge. Access paths shall be erected as follows:

(A) Points of access, materials handling areas and storage areas shall be connected to the work area by a clear access path formed by two warning lines.

(B) When the path to a point of access is not in use, a rope, wire, or chain, equal in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area.

(7) Employees shall be instructed to stay inside the warning lines and headers except when work must be performed at the roof edge.

(8) Application of materials outside the warning lines shall be closely supervised by a qualified person.

(9) On narrow roofs and roofs of unusual shape where warning lines and headers would be impractical, the application of materials shall be closely supervised by a qualified person.

(10) When a felt-laying machine or any other equipment that is pulled by an operator who walks backwards is being used, the operator shall be no closer than 3 feet to the roof edges that are parallel (or nearly so) to the direction in which the operator is moving. Motorized equipment on which the operator rides shall not be used or stored between the warning line and the roof edge.

Appendix B - Ontario Regulations for Construction Projects

General Construction Application

20. This Part applies with respect to all projects. O. Reg. 213/91, s. 20.

PROTECTIVE CLOTHING, EQUIPMENT AND DEVICES

21. (1) A worker shall wear such protective clothing and use such personal protective equipment or devices as are necessary to protect the worker against the hazards to which the worker may be exposed. O. Reg. 213/91, s. 21 (1).

(2) A worker's employer shall require the worker to comply with subsection (1). O. Reg. 213/91, s. 21 (2).

(3) A worker required to wear protective clothing or use personal protective equipment or devices shall be adequately instructed and trained in the care and use of the clothing, equipment or device before wearing or using it. O. Reg. 213/91, s. 21 (3).

22. (1) Every worker shall wear protective headwear at all times when on a project. O. Reg. 213/91, s. 22 (1).

(2) Protective headwear shall be a safety hat that,

(a) consists of a shell and suspension that is adequate to protect a person's head against impact and against flying or falling small objects; and

(b) has a shell which can withstand a dielectric strength test at 20,000 volts phase to ground. O. Reg. 213/91, s. 22 (2).

23. (1) Every worker shall wear protective footwear at all times when on a project. O. Reg. 213/91, s. 23 (1).

(2) Protective footwear shall be a safety shoe or safety boot,

(a) with a box toe that is adequate to protect the wearer's toes against injury due to impact and is capable of resisting at least 125 joules impact; and

(b) with a sole or insole that is adequate to protect the wearer's feet against injury due to puncture and is capable of resisting a penetration load of 1.2 kilonewtons when tested with a DIN standard pin. O. Reg. 213/91, s. 23 (2).

24. A worker shall use protection appropriate in the circumstances when there is a risk of eye injury to the worker. O. Reg. 213/91, s. 24.

25. A worker shall use protection appropriate in the circumstances when there is a risk of injury on a project from contact between the worker's skin and,

(a) a noxious gas, liquid, fume or dust;

(b) an object that may puncture, cut or abrade the skin;

(c) a hot object, hot liquid or molten metal; or

(d) radiant heat. O. Reg. 213/91, s. 25.

26. Sections 26.1 to 26.10 apply where a worker is exposed to any of the following hazards:

1. Falling more than 3 metres.
2. Falling more than 1.2 metres, if the work area is used as a path for a wheelbarrow or similar equipment.
3. Falling into operating machinery.
4. Falling into water or another liquid.
5. Falling into or onto a hazardous substance or object.
6. Falling through an opening on a work surface. O. Reg. 145/00, s. 12.

26.1 (1) A worker shall be adequately protected by a guardrail system that meets the requirements of subsections 26.3 (2) to (8). O. Reg. 145/00, s. 12.

(2) Despite subsection (1), if it is not reasonably possible to install a guardrail system as that subsection requires, a worker shall be adequately protected by at least one of the following methods of fall protection:

1. A travel restraint system that meets the requirements of section 26.4.
2. A fall restricting system that meets the requirements of section 26.5.
3. A fall arrest system that meets the requirements of section 26.6.
4. A safety net that meets the requirements of section 26.8. O. Reg. 145/00, s. 12.

(3) The components of any system listed in subsection (2) shall be designed by a professional engineer in accordance with good engineering practice, and shall meet the requirements of any of the following National Standards of Canada standards that are applicable:

1. CAN/CSA-Z259.1-M99: Safety Belts and Lanyards.
2. CAN/CSA-Z259.2.1-M98: Fall Arresting Devices and Vertical Lifelines.
3. CAN/CSA-Z259.2.2-M98: Self-Retracting Devices for Personal Fall Arrest Systems.
4. CAN/CSA-Z259.2.3-M98: Descent Control Devices.
5. CAN/CSA-Z259.10-M90: Full Body Harnesses.
6. CAN/CSA-Z259.11-M92: Shock Absorbers for Personal Fall Arrest Systems. O. Reg. 145/00, s. 12.

(4) Before any use of a fall arrest system or a safety net by a worker at a project, the worker's employer shall develop written procedures for rescuing the worker after his or her fall has been arrested. O. Reg. 145/00, s. 12.

26.2 (1) An employer shall ensure that a worker who may use a fall protection system is adequately trained in its use and given adequate oral and written instructions by a competent person. O. Reg. 145/00, s. 13.

(2) The employer shall ensure that the person who provides the training and instruction referred to in subsection (1) prepares a written training and instruction record for each worker and signs the record. O. Reg. 145/00, s. 13.

(3) The training and instruction record shall include the worker's name and the dates on which training and instruction took place. O. Reg. 145/00, s. 13.

(4) The employer shall make the training and instruction record for each worker available to an inspector on request. O. Reg. 145/00, s. 13.

26.3 (1) Despite paragraph 1 of section 26, a guardrail system that meets the requirements of this section shall be used if a worker has access to the perimeter or an open side of any of the following work surfaces and is exposed to a fall of 2.4 metres or more:
1. A floor, including the floor of a mezzanine or balcony.
2. The surface of a bridge.
3. A roof while formwork is in place.
4. A scaffold platform or other work platform, runway or ramp. O. Reg. 145/00, s. 14.

(2) One of the following precautions shall be used to prevent a worker from falling through an opening on a work surface:
1. A guardrail system that meets the requirements of this section.
2. A protective covering that,
   i. completely covers the opening,
   ii. is securely fastened,
   iii. is adequately identified as covering an opening,
   iv. is made from material adequate to support all loads to which the covering may be subjected, and
   v. is capable of supporting a live load of at least 2.4 kilonewtons per square metre without exceeding the allowable unit stresses for the material used. O. Reg. 145/00, s. 14.

(3) The guardrail system or protective covering required under subsection (1) or (2) may be removed temporarily to perform work in or around the opening if a worker is adequately protected and signs are posted in accordance with subsections 44 (1) and (2). O. Reg. 145/00, s. 14.

(4) The following are the specifications for a guardrail system:
1. It shall have a top rail, an intermediate rail and a toe board.
2. The intermediate rail may be replaced by material that can withstand a point load of 450 newtons applied in a lateral or vertical downward direction.
3. The top of the guardrail system shall be located at least 0.9 metres but not more than 1.1 metres above the surface on which the system is installed.
4. The toe board shall extend from the surface to which the guardrail system is attached to a height of at least 100 millimetres or, if the toe board is made of wood, at least 89 millimetres.
5. If the guardrail system is located at the perimeter of a work surface, the distance between the edge of the surface and the guardrail system shall not be greater than 300 millimetres. O. Reg. 145/00, s. 14.

(5) A guardrail system shall be capable of resisting anywhere along the length of the system the following loads when applied separately, without exceeding the allowable unit stress for each

material used:

1. A point load of 675 newtons applied in a lateral direction to the top rail.
2. A point load of 450 newtons applied in a vertical downward direction to the top rail.
3. A point load of 450 newtons applied in a lateral or vertical downward direction to the intermediate rail, or midway between the top rail and the toe board.
4. A point load of 225 newtons applied in a lateral direction to the toe board. O. Reg. 145/00, s. 14.

(6) If the distance between any two adjacent posts of the guardrail system is greater than 2.4 metres, the system shall be capable of resisting the loads specified in subsection (5) increased in proportion to the greater distance between the posts. O. Reg. 145/00, s. 14.

(7) The following additional requirements apply to a guardrail system that is made of wood:

1. The wood shall be spruce, pine or fir (S-P-F) timber of construction grade quality or better.
2. The wood shall be free of sharp objects such as splinters and protruding nails.
3. The system shall have posts that are at least 38 millimetres by 89 millimetres, are securely fastened to the surface and are spaced at intervals of not more than 2.4 metres.
4. The top rail and the intermediate rail shall each be at least 38 millimetres by 89 millimetres. O. Reg. 145/00, s. 14.

(8) The following additional requirements apply to a guardrail system that is made of wire rope:

1. The top rail and intermediate rail shall be made of wire rope that is at least 10 millimetres in diameter, and the rope shall be kept taut by a turnbuckle.
2. The outward deflection of the top rail and intermediate rail resulting from the loads specified in subsection (5) shall not extend beyond the edge of a work surface.
3. The system shall have vertical separators at intervals of not more than 2.4 metres and horizontal supports at intervals of not more than 9 metres.
4. The intermediate rail shall be located midway between the top rail and the toe board. O. Reg. 145/00, s. 14.

26.4 (1) A travel restraint system shall consist of a full body harness with adequate attachment points or a safety belt. O. Reg. 145/00, s. 14.

(2) The full body harness or safety belt shall be attached by a lifeline or lanyard to a fixed support that meets the requirements of section 26.7. O. Reg. 145/00, s. 14.

(3) The travel restraint system shall be inspected by a competent worker before each use. O. Reg. 145/00, s. 14.

(4) If a component of the travel restraint system is found to be defective on inspection, the defective component shall immediately be taken out of service. O. Reg. 145/00, s. 14.

26.5 (1) A fall restricting system shall consist of an assembly of components that is,

(a) attached to an independent fixed support that meets the requirements of section 26.7; and

(b) designed and arranged in accordance with the manufacturer's instructions so that a worker's free fall distance does not exceed 0.6 metres. O. Reg. 145/00, s. 14.

(2) The fall restricting system shall be inspected by a competent worker before each use. O. Reg. 145/00, s. 14.

(3) If a worker who is using the fall restricting system falls more than 0.6 metres, the system shall be immediately removed from service and shall not be used again by a worker unless all components of the system have been certified by the manufacturer as being safe for re-use. O. Reg. 145/00, s. 14.

26.6 (1) A fall arrest system shall consist of a full body harness with adequate attachment points and a lanyard equipped with a shock absorber or similar device. O. Reg. 145/00, s. 14.

(2) The fall arrest system shall be attached by a lifeline or by the lanyard to an independent fixed support that meets the requirements of section 26.7. O. Reg. 145/00, s. 14.

(3) The fall arrest system shall be arranged so that a worker cannot hit the ground or an object or level below the work. O. Reg. 145/00, s. 14.

(4) Despite subsection (1), the fall arrest system shall not include a shock absorber if wearing or using one could cause a worker to hit the ground or an object or level below the work. O. Reg. 145/00, s. 14.

(5) The fall arrest system shall not subject a worker who falls to a peak fall arrest force greater

than 8 kilonewtons. O. Reg. 145/00, s. 14.

(6) The fall arrest system shall be inspected by a competent worker before each use. O. Reg. 145/00, s. 14.

(7) If a component of the fall arrest system is found to be defective on inspection, the defective component shall immediately be taken out of service. O. Reg. 145/00, s. 14.

(8) If a worker who is using the fall arrest system falls, the system shall be immediately removed from service and shall not be used again by a worker unless all components of the system have been certified by the manufacturer as being safe for re-use. O. Reg. 145/00, s. 14.

26.7 (1) A permanent anchor system shall be used as the fixed support in a fall arrest system, fall restricting system or travel restraint system if the following conditions are met:

1. The anchor system has been installed according to the Building Code.
2. It is safe and practical to use the anchor system as the fixed support. O. Reg. 145/00, s. 14.

(2) If the conditions set out in subsection (1) are not met, a temporary fixed support shall be used that meets the following requirements:

1. Subject to paragraph 2, a support used in a fall arrest system shall be capable of supporting a static force of at least 8 kilonewtons without exceeding the allowable unit stress for each material used.
2. If a shock absorber is also used in the fall arrest system, the support shall be capable of supporting a static force of at least 6 kilonewtons without exceeding the allowable unit stress for each material used.
3. Subject to paragraph 4, a support used in a fall restricting system must be capable of supporting a static force of at least 6 kilonewtons without exceeding the allowable unit stress for each material used.
4. Paragraph 3 does not apply to a support that is used in accordance with the manufacturer's written instructions and is adequate to protect a worker.
5. A support used in a travel restraint system shall be capable of supporting a static force of at least 2 kilonewtons without exceeding the allowable unit stress for each material used. O. Reg. 145/00, s. 14.

(3) Despite the requirements listed in subsection (2), the support capacity of a temporary fixed support used in a fall protection system may be determined by dynamic testing in accordance with good engineering practice to ensure that the temporary fixed support has adequate capacity to arrest a worker's fall. O. Reg. 145/00, s. 14.

(4) A fixed support shall not have any sharp edges that could cut, chafe or abrade the connection between it and another component of the system. O. Reg. 145/00, s. 14.

26.8 (1) A safety net shall be designed, tested and installed in accordance with ANSI Standard 10.11-1989, Personnel and Debris Nets for Construction and Demolition Operations. O. Reg. 145/00, s. 14.

(2) The safety net shall be installed by a competent worker. O. Reg. 145/00, s. 14.

(3) A professional engineer or a competent person under the engineer's supervision shall inspect and test the installation of the safety net before it is put in service. O. Reg. 145/00, s. 14.

(4) The engineer shall document the inspection and testing of the safety net and shall sign and seal the document. O. Reg. 145/00, s. 14.

(5) A copy of the document shall be kept at the project while the safety net is in service. O. Reg. 145/00, s. 14.

26.9 (1) This section applies to a lanyard or lifeline that is part of a travel restraint system or a fall arrest system. O. Reg. 145/00, s. 14.

(2) The following requirements apply to a lanyard or a lifeline:

1. It shall not be used in such a way that it is likely to be cut, chafed or abraded.
2. It shall not be subjected to extreme temperature, flame, abrasive or corrosive materials or other hazards that may damage it.
3. The free end of the lanyard or lifeline shall be kept clear of equipment and machinery. O. Reg. 145/00, s. 14.

(3) Only one person at a time may use a lanyard. O. Reg. 145/00, s. 14.

(4) The connecting ends of a lanyard shall be wrapped around a protective thimble and securely fastened with a swaged fitting or eye splice supplied by the manufacturer of the lanyard. O. Reg. 145/00, s. 14.

(5) A horizontal or vertical lifeline shall be kept free from splices or knots, except knots used to connect it to a fixed support. O. Reg. 145/00, s. 14.

(6) Only one person at a time may use a vertical lifeline. O. Reg. 145/00, s. 14.

(7) A vertical lifeline shall,

(a) extend to the ground; or

(b) have a positive stop that prevents the rope grab or other similar device from running off the end of the lifeline. O. Reg. 145/00, s. 14.

(8) The following requirements apply to a horizontal lifeline system:

1. It shall be designed by a professional engineer in accordance with good engineering practice.

2. The design may be a standard design or a custom design.

3. The design shall,

i. show the arrangement of the system including the anchorage or fixed support system,

ii. indicate the components used,

iii. state the number of workers that can safely be attached to it,

iv. set out instructions for installation or erection, and

v. show the design loads for the system.

4. The system shall be installed or erected, and maintained, in accordance with the professional engineer's design.

5. Before each use, the system shall be inspected by a professional engineer or a competent worker designated by a supervisor.

6. The constructor shall keep the design at the project while the system is in use. O. Reg. 145/00, s. 14.

26.10 (1) Subject to subsection (2), a worker who is performing work on a utility pole shall do so from an elevating work platform that meets the requirements of sections 143 and 144. O. Reg. 145/00, s. 14.

(2) If it is not practical for the worker to use an elevating work platform as described in subsection (1), the worker shall use a fall restricting system instead. O. Reg. 145/00, s. 14.

26.11 Until January 1, 2001, sections 26 to 26.10 do not apply to a worker while he or she is engaged in erecting or dismantling scaffolding, built-in-place formwork or built-in-place falsework. O. Reg. 145/00, s. 14.

Roofing

207. (1) If a built-up roof is being constructed, repaired or resurfaced, a barrier shall be placed in the immediate work area at least two metres from the perimeter of the roof. O. Reg. 213/91, s. 207 (1).

(2) The barrier shall consist of portable weighted posts supporting a taut chain, cable or rope that is located 1.1 metres above the roof level. O. Reg. 213/91, s. 207 (2).

208. (1) A pipe that supplies hot tar or bitumen to a roof shall be securely fixed and supported to prevent its deflection. O. Reg. 213/91, s. 208 (1).

(2) If a pipe discharges hot tar or bitumen within two metres of the edge of a roof, a guardrail shall be provided at the edge of the roof. O. Reg. 213/91, s. 208 (2).

209. (1) A hoist used on a roof,

(a) shall have a guardrail installed on both sides of the frame at the edge of the roof; and

(b) shall be positioned in such a way that the hoist cable is vertical at all times while a load is being hoisted. O. Reg. 213/91, s. 209 (1).

(2) Only a competent worker shall operate a hoist used on a roof. O. Reg. 213/91, s. 209 (2).

210. The counterweights on a roofer's hoist,

(a) shall be suitable for the purpose;

(b) shall not consist of roofing or other construction material;

(c) shall be securely attached to the hoist; and

(d) shall provide a safety factor against overturning of not less than three. O. Reg. 213/91, s. 210.

Hot Tar or Bitumen Road Tankers

211. (1) Only a competent worker shall operate a hot tar or bitumen roadtanker or kettle. O. Reg. 213/91, s. 211 (1).

(2) If a hot tar or bitumen roadtanker or kettle is fitted with a propane-fuelled heater,

(a) the storage cylinder for propane shall not be placed closer than three metres to a source of fire or ignition;

(b) the lines connecting the storage cylinder for propane to the heating device shall be located so that they do not come into contact with the hot tar or bitumen in the case of a spill or a failure of a component of the system; and

(c) a fire extinguisher with an Underwriters' Laboratories of Canada rating of at least 4A40BC shall be provided with the roadtanker or kettle. O. Reg. 213/91, s. 211 (2).

(3) A propane burner used on a bitumen roadtanker or kettle,

(a) shall have a thermal rating no greater than that recommended by the manufacturer of the roadtanker or kettle; and

(b) shall consist of components that are adequate for their intended use. O. Reg. 213/91, s. 211 (3).

(4) Hot tar or bitumen shall be transferred from a roadtanker to a kettle through enclosed piping. O. Reg. 213/91, s. 211 (4).

Demolition and Damaged Structures

212. (1) If a structure is so damaged that a worker is likely to be endangered by its partial or complete collapse,

(a) the structure shall be braced and shored; and

(b) safeguards appropriate in the circumstances shall be provided to prevent injury to a worker. O. Reg. 213/91, s. 212 (1).

(2) Safeguards shall be installed progressively from a safe area towards the hazard so that the workers installing the safeguards are not endangered. O. Reg. 213/91, s. 212 (2).

213. (1) Only a worker who is directly engaged in the demolition, dismantling or moving of a building or structure shall be in, on or near it. O. Reg. 213/91, s. 213 (1).

(2) If the demolition or dismantling of a building or structure is discontinued, barriers shall be erected to prevent access by people to the remaining part of the building or structure. O. Reg. 213/91, s. 213 (2).

(3) A worker shall enter only the part of a building or structure being demolished that will safely support the worker. O. Reg. 213/91, s. 213 (3).

214. (1) No building or structure shall be demolished, dismantled or moved until this section is complied with. O. Reg. 213/91, s. 214 (1).

(2) Precautions shall be taken to prevent injury to a person on or near the project or the adjoining property that may result from the demolition, dismantling or moving of a building or structure. O. Reg. 213/91, s. 214 (2).

(3) All gas, electrical and other services that may endanger persons who have access to a building or structure shall be shut off and disconnected before, and shall remain shut off and disconnected during, the demolition, dismantling or moving of the building or structure. O. Reg. 213/91, s. 214 (3).

(4) All toxic, flammable or explosive substances shall be removed from a building or structure that is to be demolished, dismantled or moved. O. Reg. 213/91, s. 214 (4).

215. (1) Sections 216, 217, 218 and 220 do not apply with respect to a building or structure that is being demolished by,

(a) a heavy weight suspended by cable from a crane or similar hoisting device;

(b) a power shovel, bulldozer or other vehicle;

(c) the use of explosives; or

(d) a combination of methods described in clauses (a) to (c). O. Reg. 213/91, s. 215 (1).

(2) The controls of a mechanical device used to demolish a building or structure shall be operated from a location that is as remote as is practicable from the building or structure. O. Reg. 213/91, s. 215 (2).

(3) If a swinging weight is used to demolish a building or structure, the supporting cable of the weight shall be short enough or shall be so restrained that the weight does not swing against another building or structure. O. Reg. 213/91, s. 215 (3).

216. (1) Demolition and dismantling of a building or structure shall proceed systematically and

continuously from the highest to the lowest point unless a worker is endangered by this procedure. O. Reg. 213/91, s. 216 (1).

(2) Despite subsection (1), the skeleton structural frame in a skeleton structural frame building may be left in place during the demolition or dismantling of the masonry if the masonry and any loose material are removed from the frame systematically and continuously from the highest to the lowest point. O. Reg. 213/91, s. 216 (2).

(3) The work above a tier or floor of a building or structure shall be completed before the support of the tier or floor is affected by demolition or dismantling operations. O. Reg. 213/91, s. 216 (3).

217. No exterior wall of a building or structure shall be demolished until all glass is removed from windows, doors, interior partitions and components containing glass or is protected to prevent the glass from breaking during the demolition. O. Reg. 213/91, s. 217.

218. (1) Masonry walls of a building or structure being demolished or dismantled shall be removed in reasonably level courses. O. Reg. 213/91, s. 218 (1).

(2) No materials in a masonry wall of a building or structure being demolished or dismantled shall be loosened or permitted to fall in masses that are likely to endanger,

(a) a person; or

(b) the structural stability of a scaffold or of a floor or other support of the building or structure. O. Reg. 213/91, s. 218 (2).

219. No worker shall stand on top of a wall, pier or chimney to remove material from it unless flooring, scaffolding or staging is provided on all sides of it not more than 2.4 metres below the place where the worker is working. O. Reg. 213/91, s. 219.

220. No truss, girder or other structural member of a building or structure being demolished or dismantled shall be disconnected until,

(a) it is relieved of all loads other than its own weight; and

(b) it has temporary support. O. Reg. 213/91, s. 220.

221. (1) A basement, cellar or excavation left after a building or structure is demolished, dismantled or moved,

(a) shall be backfilled to grade level; or

(b) shall have fencing along its open sides. O. Reg. 213/91, s. 221 (1).

(2) Subsection (1) does not apply to a basement or cellar that is enclosed by a roof, floor or other solid covering if all openings in the roof, floor or covering are covered with securely fastened planks. O. Reg. 213/91, s. 221 (2).

1730. Roof Hazards.

(a) During roofing operations the employer shall comply with the provisions of Section 1509 and employees shall be trained and instructed in accordance with the provisions of Section 1510 of these orders.

(b) Slopes 0:12 to 4:12–Single-Unit (Monolithic) Roof Coverings.

(1) Employees shall be protected from falls from roofs of a height of more than 20 feet by use of one or a combination of the methods in this section. Whenever felt laying machines or other equipment that is pulled by an operator who walks backwards is being used, this provision shall apply regardless of the height.

(2) Warning lines consisting of rope, wire or similar material, flagged with highly visible material hanging from the warning lines at approximately 6-foot intervals, shall be installed 34 to 45 inches above the roof surface to warn employees that they are approaching the edge of the roof.
   (A) The stanchions (portable or fixed) supporting the warning lines shall be designed and installed to minimize tip over or displacement under normal working conditions.
   (B) Warning lines shall have a minimum tensile strength of 500 pounds.
   (C) The line shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.

(3) Unless conditions prohibit, headers consisting of sheets of roofing or other roofing materials shall also be laid parallel to the edges of the roof to warn employees that they are approaching the edge of the roof.

(4) The warning lines and headers shall be placed no closer than 5 feet from the roof edge.

(5) When using felt-laying machines or other equipment that is pulled by an operator who walks backwards or motorized equipment on which the operator rides, the headers shall be placed no closer than 10 feet and the warning lines shall be placed no closer than 5 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving and when conditions prohibit the use of headers, the warning lines shall be placed no closer than 10 feet from those roof edges that are perpendicular (or nearly so) to the direction in which the operator is moving.

(6) The warning lines and headers shall be erected either around the complete perimeter of the roof or only in areas of the roof where work is being accomplished, so long as the warning lines and headers are moved as the work progresses in such a manner as to provide continuous warning to employees in the work area when they approach the roof edge. Access paths shall be erected as follows:
   (A) Points of access, materials handling areas and storage areas shall be connected to the work area by a clear access path formed by two warning lines.
   (B) When the path to a point of access is not in use, a rope, wire, or chain, equal in strength and height to the warning line, shall be placed across the path at the point where the path intersects the warning line erected around the work area.

(7) Employees shall be instructed to stay inside the warning lines and headers except when work must be performed at the roof edge.

(8) Application of materials outside the warning lines shall be closely supervised by a qualified person.

(9) On narrow roofs and roofs of unusual shape where warning lines and headers would be impractical, the application of materials shall be closely supervised by a qualified person.

(10) When a felt-laying machine or any other equipment that is pulled by an operator who walks backwards is being used, the operator shall be no closer than 3 feet to the roof edges that are parallel (or nearly so) to the direction in which the operator is moving. Motorized equipment on which the operator rides shall not be used or stored between the warning line and the roof edge.

Appendix C - Cable Mill Certifications

Date June 8, 2000

Messrs . VANGUARD STEEL LTD.

ORIGINAL

MILL TEST CERTIFICATE

Order No. : T-12358 L/C No. 1500669T07512 Reel No. 57-66

Commodity : GALVANIZED AIRCRAFT CABLE

Specification : ACC. TO MIL. SPEC. W-83420D

* THIS GALVANIZED AIRCRAFT CABLE IS FOR GENERAL PURPOSE ONLY NOT FOR AUTOMOTIVE INDUSTRIES AND AIRCRAFT USE .

CONSTRUCTION & SIZE

Construction :	7X19	Lay :	R.H.R.L.
Preforming :	GOOD		
Rope Diameter :	1/4"	Length/Reel :	10,200FT.
King Wire Diameter :	0.47 (±0.01) mm	Wire Grade :	IPS.
Outer Wire Diameter :	0.42 (±0.01) mm	Net Wt/Reel :	508.9± KGS.
Lay Length :	39.0 - 42.0mm	Part No. :	-

TEST RESULT

Rope Diameter :	6.37 - 6.43mm	Wire Of Lay :	Z
King Wire Diameter :	0.47mm	Lay Length :	41.0mm
Outer Wire Diameter :	0.42mm	Breaking Strength :	7,290 Lbs
Wt. Zinc Coating :	34.9 g/sq.m	Tensile Strength :	180 kgf/sq.mm

WIRE ROD CHEMICAL ANALYSIS (WT. %)

Chemical Composition	C	Si	Mn	P	S	
(%)	0.63	0.19	0.46	0.019	0.010	

We hereby certify that the commodity is inspected according to the Specification and found good in all respects as stated above .

JINYANG WIRE ROPE (THAILAND) CO.,LTD.

LLOYD'S REGISTER OF SHIPPING

ISO9002

Issue No.: 5012 7239 Date : AUG.14,2002

MILL TEST CERTIFICATE

Customer:	VANGUARD STEEL LTD.		
Order No. :	T-12858	Terms :	T/T
Commodity:	STEEL WIRE ROPE		
Construction:	7X19	Rope Dia. :	5/16 "
Length/Reel:	5000 FT	Quantity:	12 REELS
Gross wt./Reel:	889 LBS	Net wt./Reel:	841 LBS

TEST RESULTS

Specified Breaking Load:	9800 LBS		
Actual Breaking Load:	10820 LBS		
Wt. of Zinc Coating:	ABOVE 0.10 OZ/FT2	Lay Length:	2.126 "
Rope Lay:	RHRL	Preforming:	WELL PREFORMED

CHEMICAL ANALYSIS OF WIRE ROD

CHEMICAL COMPOSITION	C%	Si %	Mn %	P %	S %
	0.70-0.74	0.15-0.23	0.45-0.58	0.008-0.020	0.008-0.020

We hereby certify that the commodity is inspected in accordance with MIL-DTL-83420I no fatigue test and found good in all respects as stated above.

A) COUNTRY OF ORIGIN: CHINA

INSPECTOR

V 2 9 5 4 SEP - 3 2002

Appendix D: Job Site Safety Checklist

On Roof:

- ☐ 1. Proper Fire Extinguisher
- ☐ 2. Safety Glasses
- ☐ 3. Approved gas cans
- ☐ 4. Extension Cords in good condition with GCFI
- ☐ 5. First Aid Kit
- ☐ 6. Proper apparel

Flat Low-Slope Roofing

- ☐ 1. No mechanical equipment or material within 6ft of edge without a guardrail system
- ☐ 2. Warning Lines, Monitor System or Guardrail System

Tear Off:

- ☐ 1. Chute or dump pan used on roofs greater than 20 feet from ground
- ☐ 2. Safety glasses and dust masks
- ☐ 3. Tear-off container roped off on ground level

Special Hazards

- ☐ 1. Electrical lines shut off or roped off
- ☐ 2. Roof openings guard railed or roped off
- ☐ 3. Unsafe decking properly covered and roped off to prevent unauthorized access.

If flammable vapors discharged on roof – see owner

Radiation hazard on roof – see owner

Kettle:

- ☐ 1. Inspected
- ☐ 2. Operator wearing face shield and proper clothing
- ☐ 3. Fire extinguisher
- ☐ 4. Proper placement of all equipment
- ☐ 5. Propane secured 20 feet away from kettle
- ☐ 6. Guardrails at outlet area
- ☐ 7. Area roped off

On Ground:

- ☐ 1. Ground fault box at electrical power source
- ☐ 2. Emergency phone numbers posted
- ☐ 3. Hard hats Worn

Steep Roofing - 4 in 12

- ☐ 1. Scaffold, guardrails, fence, catch platform or safety lines being used
- ☐ 2. Ground area roped or guard railed off to pedestrian traffic.
- ☐ 3. Ground level personnel wearing hard hats.

Hoist

- ☐ 1. Inspected
- ☐ 2. Counter balance with pan and weights
- ☐ 3. Line secured at night
- ☐ 4. Guardrails at hoist area
- ☐ 5. Hard hats worn

Ladder:

- ☐ 1. Tied Off
- ☐ 2. Safety feet
- ☐ 3. Three feet above roof edge
- ☐ 4. Inspected
- ☐ 5. Secure at night
- ☐ 6. Hard hats worn

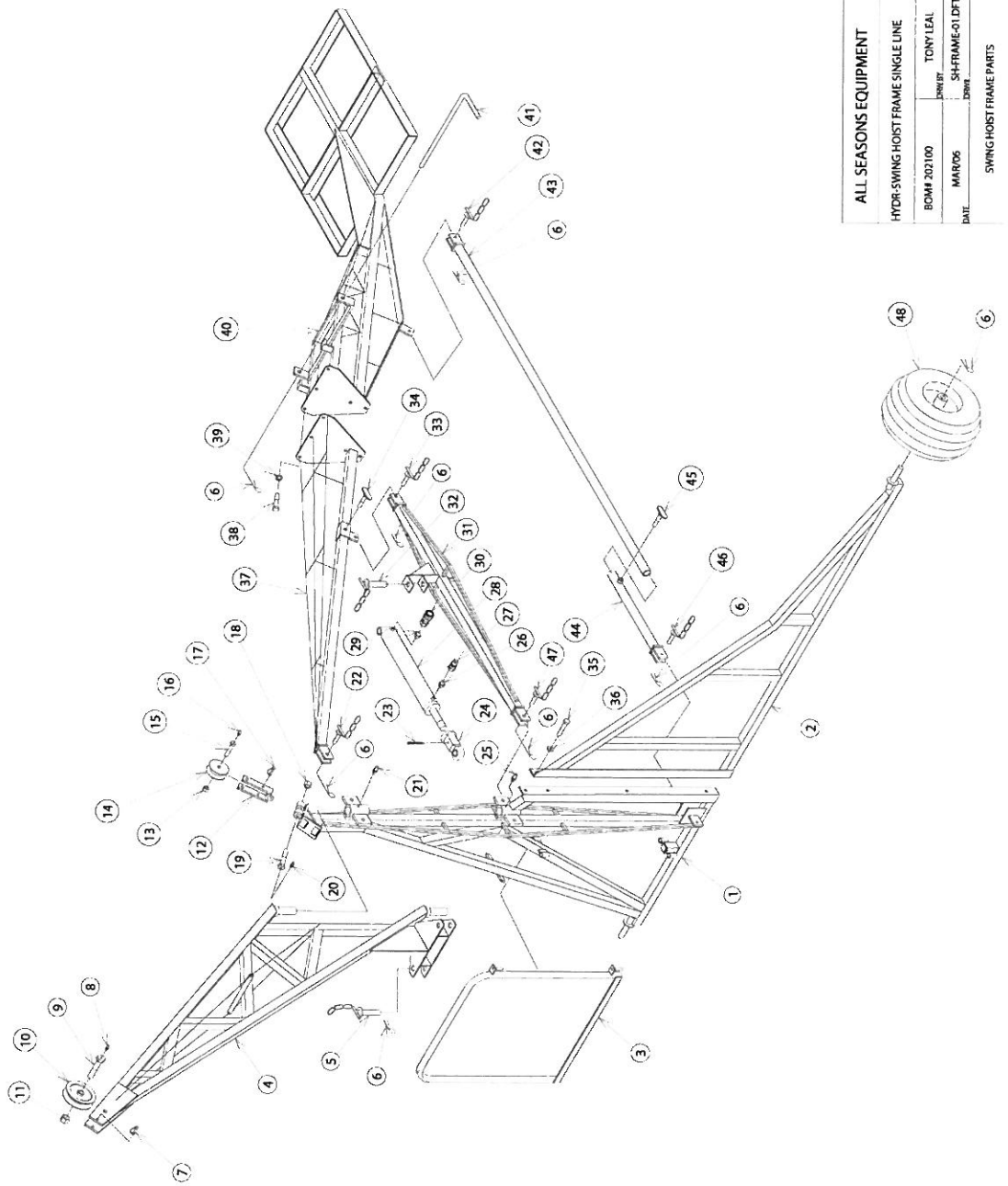
Scaffolding:

- ☐ 1. Secured to building 30 feet wide, 20 feet high
- ☐ 2. Leveling shoes
- ☐ 3. Planking and plywood
- ☐ 4. Guardrails
- ☐ 5. Inspected

Hazard Communication

- ☐ 1. Hazard communication policy on site
- ☐ 2. MSDS's for materials on site
- ☐ 3. Workers trained about hazards.

Appendix E: Parts Drawings



ALL SEASONS EQUIPMENT		
HYDR-SWING HOIST FRAME SINGLE LINE		
BOM# 202100	DRAWN BY	TONY LEAL
DATE MAR/06	DWG	SH-FRAME-01.DFT
SWING HOIST FRAME PARTS		

INDEX	NB.	DESIGNATION	REFERENCE
1	1	main vertical frame c/w side extention	202101
2	1	Vertical frame -side extention	202109
3	1	Safety gate	202106
4	1	Swing boom-Single line hoist	202102
5	1	Pin front connection swing cylinder	202115
6	8	Hitch pin	910405
7	1	Safety spring lock pin -long	910421
8	1	Grease nipple-straight	910001
9	1	Bolt c/w grease nipple	202154
10	1	Cable pulley	202151
11	1	Nylon lock nut	915550
12	1	Swing bracket-vertical frame	202153
13	1	Nylon lock nut	915510
14	1	Cable pulley	202150
15	1	Bolt c/w grease nipple	202152
16	1	Grease nipple	910001
17	1	Safety spring lock pin-long	910421
18	1	Nylon lock nut	915545
19	1	Bolt c/w grease nipple	202157
20	1	Grease nipple-straight	910001
21	1	Grease nipple-straight	910001
22	1	Pin c/w chain	202108
23	1	Cotter pin	915805
24	1	Rod-end	206224
25	1	Grease nipple-straight	910001
26	1	Hyfraulic adaptor c/w #4000-6 oring	912448
27	1	Quick disconnect male	912333
28	1	Hydraulic cylinder-swing	202201
29	1	Hydraulic adaptor c/w #4000-6 oring	912448
30	1	Quick disconnect -female	912330
31	1	Swing cylinder support boom	202104
32	1	Pin c/w chain	202120
33	1	Pin c/w chain	202108
34	2	Wing bolt	202640
35	4	Bolt	915205
36	4	Lock washer	915655
37	1	Winch & weight support upper boom	202125
38	5	Bolt	915205
39	5	lock washer	915655
40	1	Winch & weight support lower boom	202130
41	1	Pin-Winch	202107
42	1	Pin c/w chain	202108
43	1	Lower support arm-c/w telescopic	202105
44	1	Telescopic lower support arm	202135
45	1	Wing bolt	202640
46	1	Pin c/w chain	202108
47	1	Pin c/w chain	202108
48	2	Optional- wheel	910314

INDEX	NB.	DESIGNATION	REFERENCE
1	1	main vertical frame c/w side extention	202101
2	1	Vertical frame -side extention	202109
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4	1	Swing boom-Double line hoist	202112
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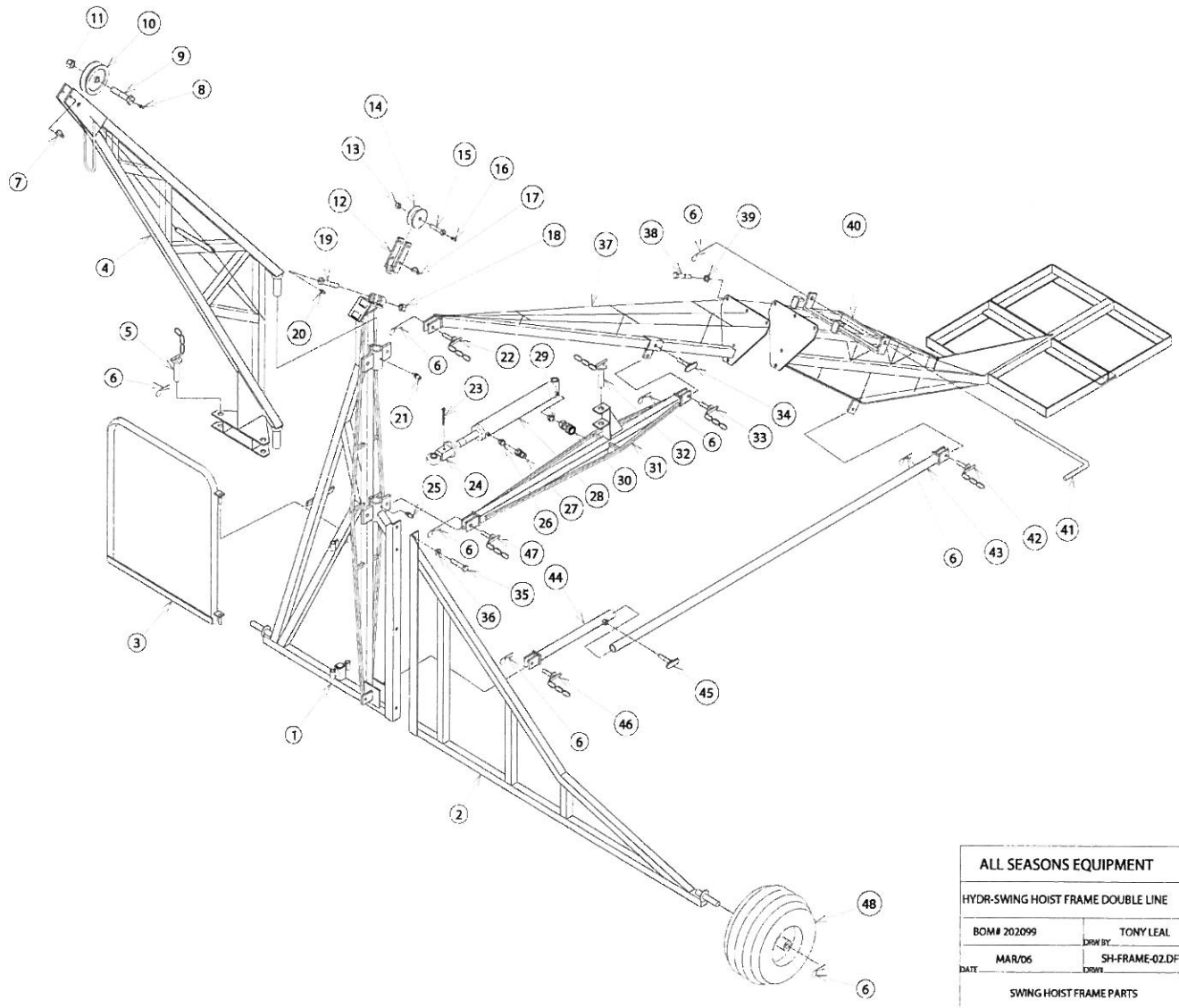
6	8	Hitch pin	910405
7	1	Safety spring lock pin -long	910421
8	1	Grease nipple-straight	910001
9	1	Bolt c/w grease nipple	202154
10	1	Cable pulley	202151
11	1	Nylon lock nut	915550
12	1	Swing bracket-vertical frame	202153
13	1	Nylon lock nut	915510
14	1	Cable pulley	202150
15	1	Bolt c/w grease nipple	202152
16	1	Grease nipple	910001
17	1	Safety spring lock pin-long	910421
18	1	Nylon lock nut	915545
19	1	Bolt c/w grease nipple	202157
20	1	Grease nipple-straight	910001
21	1	Grease nipple-straight	910001
22	1	Pin c/w chain	202108
23	1	Cotter pin	915805
24	1	Rod-end	206224
25	1	Grease nipple-straight	910001
26	1	Hyfraulic adaptor c/w #4000-6 oring	912448
27	1	Quick disconnect male	912331
28	1	Hydraulic cylinder-swing	202201
29	1	Hydraulic adaptor c/w #4000-6 oring	912448
30	1	Quick disconnect -female	912330
31	1	Swing cylinder support boom	202104
32	1	Pin c/w chain	202120
33	1	Pin c/w chain	202108
34	1	Wing bolt	202640
35	4	Bolt	915205
36	4	Lock washer	915655
37	1	Winch & weight support upper boom	202125
38	5	Bolt	915205
39	5	lock washer	915655
40	1	Winch & weight support lower boom	202130
41	1	Pin-Winch	202107
42	1	Pin c/w chain	202108
43	1	Lower support arm-c/w telescopic	202105
44	1	Telescopic lower support arm	202135
45	1	Wing bolt	202640
46	1	Pin c/w chain	202108
47	1	Pin c/w chain	202108
48	2	Optional wheel	910314



ALL SEASONS EQUIPMENT	
HYDR-SWING HOIST FRAME DOUBLE LINE	
BOM# 202099	DRW BY: TONY LEAL
DATE: MAR/06	DRWI: SH-FRAME-02.DFT
SWING HOIST FRAME PARTS	

INDEX	NB.	DESIGNATION	REFERENCE
1	1	Power pack frame only	202159
2	2	wheel	910327
3	2	flat washer	915575
4	2	Cotter pin	915800
5	1	Battery	910410
6	1	battery cable Power x 16"	202185
7	1	battery - cable ground x 6"	202190
8	2	Carriage bolt	915030
9	2	nylon lock nut	915455
10	1	bolt 8mm	914930
11	1	Hydraulic adaptor	912515
12	1	Filler cap	912100
13	1	Site level gauge	912111
14	2	plastic grips	909052
15	1	Hydraulic valve-	912203
16	2	levers-hydraulic valve	912213
17	3	nylon lock nut	915455
18	3	bolt	915070
19	1	Fuel tank c/w filler cap	202156
20	1	Filler breather cap	912100
21	4	nylon lock nut	915455
22	4	bolt	915035
23	1	Fuel tap	912280
24	1	Barbed fitting	912275
25	1	Fuel hose	202180
26	4	hose clamps	909005
27	1	Fuel filter	909003
28	1	Hydraulic adaptor	912430
29	7	Bolt	915050
30	7	washer flat	915560
31	1	Suction tube	202158
32	1	Gasket-suction tube	912115
33	1	Street elbow	500258
34	1	Suction strainer	912120
35	1	Hydraulic hose assembly	202192
36	1	Quick disconnect	912325
37	1	Hydraulic hose assembly	202295
38	1	Hydraulic adaptor	912422
39	2	Bolt	915220
40	1	Hydraulic pump	912011
41	1	Hydraulic adaptor	912480
42	1	key	911363
43	1	Sprocket	911353
44	1	Sprocket	911352
45	1	Chain	911351

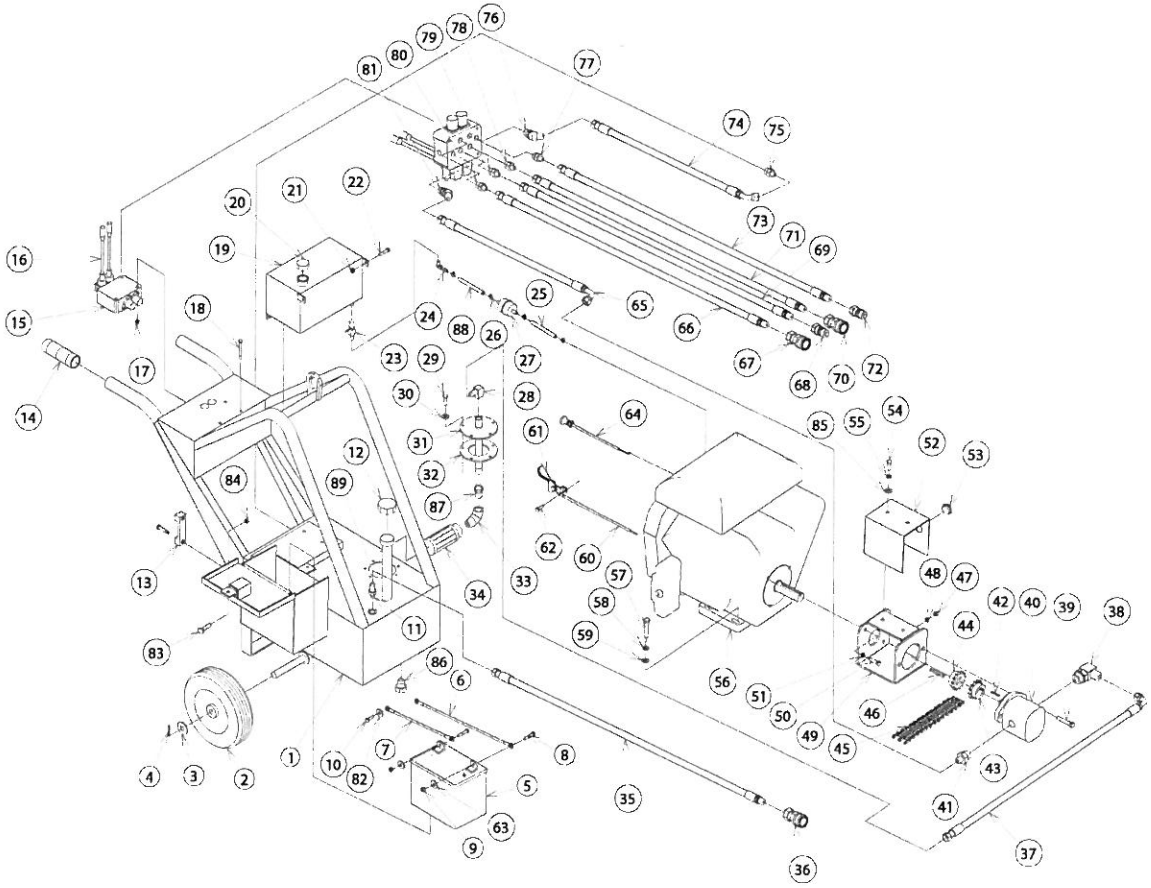
INDEX	NB.	DESIGNATION	REFERENCE
46	1	key	911361
47	2	nut	915485
48	2	Lock washer	915655
49	1	Pump mount bracket	912041
50	4	Bolt	915053
51	4	Lock washer	915635
52	1	Cover - pump mount bracket	912047
53	1	Hole plug	910450
54	2	Bolt	915035
55	2	Lock washer	915635
56	1	Honda engine	109805
57	4	Bolt	915135
58	4	lock washer	915640
59	4	flat washer	915562
60	1	Accelerator cable	202170
61	1	Accelerator lever	910400
62	2	Self taping screw	915000
63	2	flat washer	915560
64	1	Choke cable	202165
65	1	Hydraulic hose assembly	202293
66	1	Hydraulic hose assembly	202290
67	1	Quick disconnect female	912330
68	1	Quick disconnect male	912331
69	1	Hydraulic hose assembly	202290
70	1	Quick disconnect female	912320
71	1	hydraulic hose assembly	202291
72	1	Quick disconnect male	912321
73	1	Hydraulic hose assembly	202291
74	1	Hydraulic hose assembly	202297
75	1	Hydraulic adaptor	912525
76	1	Hydraulic adaptor	912404
77	1	hydraulic adaptor	912454
78	1	hydraulic adaptor	912454
79	1	hydraulic adaptor	912454
80	1	hydraulic adaptor	912454
81	1	hydraulic adaptor	912404
82	1	flat washer	915560
83	1	bolt	915050
84	1	nylon lock nut	915455
85	2	flat washer	915560
86	1	Plug	500312
87	1	Reducer bushing	500393
88	1	Fuel hose	202175
89	56	liters oil for hydraulic tank	909075

ALL SEASONS EQUIPMENT

HYD-SWING 2000 SINGLE LINE

BOM4102127	DRW BY: TONY LEAL
DATE: MAR/2006	DRWG: SH-POWERUNIT-01.DFT

HYDRAULIC POWER PACK FOR 2000 SWING HOIST SINGLE LINE



INDEX	NB.	DESIGNATION	REFERENCE
1	1	Power pack frame only	202159
2	2	wheel	910327
3	2	flat washer	915575
4	2	Cutter pin	915800
5	1	Battery	910410
6	1	battery cable Power x 16"	202185
7	1	battery - cable ground x 6"	202190
8	2	Carriage bolt	915030
9	2	nylon lock nut	915455
10	1	bolt 8mm	914930
11	1	Hydraulic adaptor	912515
12	1	Filler cap	912100
13	1	Site level gauge	912111
14	2	plastic grips	909052
15	1	Hydraulic valve-	912203
16	2	levers-hydraulic valve	912213
17	3	nylon lock nut	915455
18	3	bolt	915070
19	1	Fuel tank c/w filler cap	202156
20	1	Filler breather cap	912100
21	4	nylon lock nut	915455
22	4	bolt	915035
23	1	Fuel tap	912280
24	1	Barbed fitting	912275
25	1	Fuel hose	202180
26	4	hose clamps	909005
27	1	Fuel filter	909003
28	1	Hydraulic adaptor	912430
29	7	Bolt	915050
30	7	washer flat	915560
31	1	Suction tube	202158
32	1	Gasket-suction tube	912115
33	1	Street elbow	500258
34	1	Suction strainer	912120
35	1	Hydraulic hose assembly	202192
36	1	Quick disconnect	912325
37	1	Hydraulic hose assembly	202295
38	1	Hydraulic adaptor	912421
39	2	Bolt	915220
40	1	Hydraulic pump	912010
41	1	Hydraulic adapter	912480
42	1	key	911363
43	1	Sprocket	911353
44	1	Sprocket	911352
45	1	Chain	911351

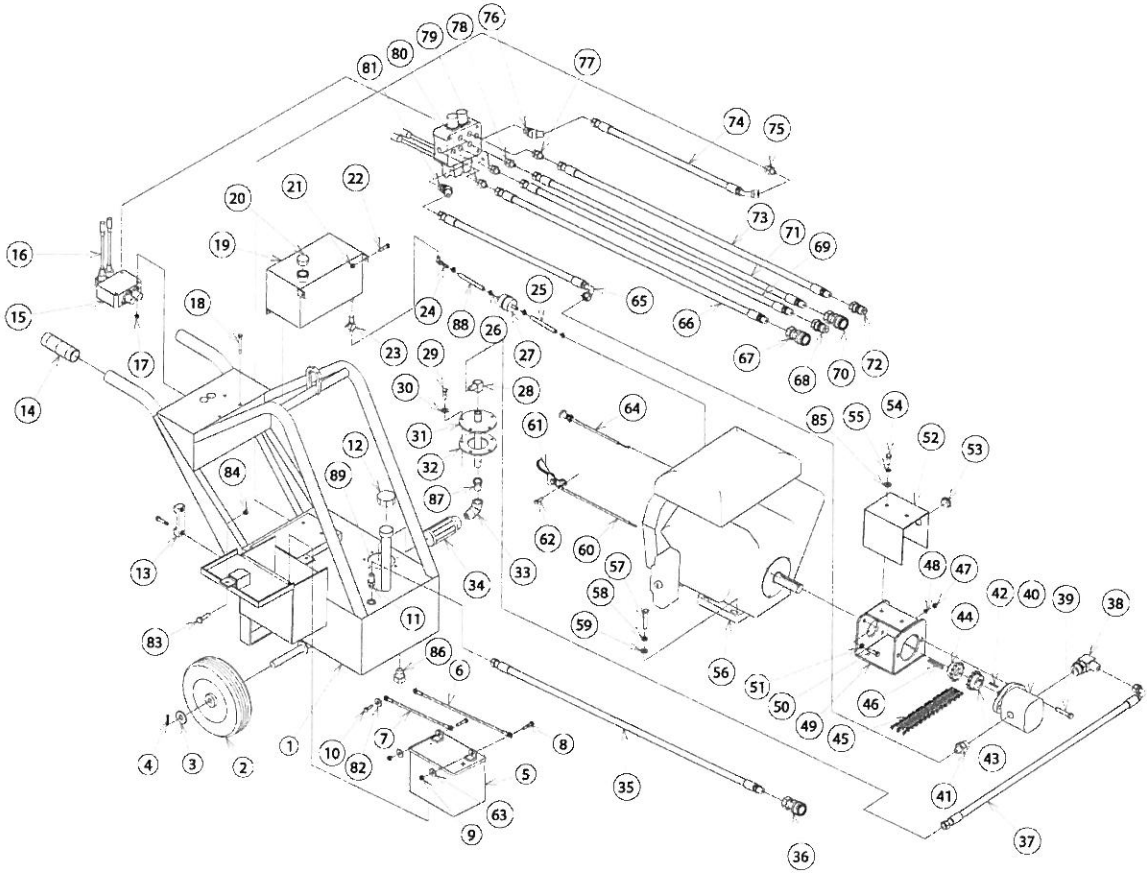
INDEX	NB.	DESIGNATION	REFERENCE
46	1	key	911361
47	2	nut	915485
48	2	Lock washer	915655
49	1	Pump mount bracket	912041
50	4	Bolt	915053
51	4	Lock washer	915635
52	1	Cover -pump mount bracket	912047
53	1	Hole plug	910450
54	2	Bolt	915035
55	2	Lock washer	915635
56	1	Honda engine	109705
57	4	Bolt	915135
58	4	lock washer	915640
59	4	flat washer	915562
60	1	Accelerator cable	202170
61	1	Accelerator lever	910400
62	2	Self taping screw	915000
63	2	flat washer	915560
64	1	Choke cable	202165
65	1	Hydraulic hose assembly	202293
66	1	Hydraulic hose assembly	202290
67	1	Quick disconnect female	912330
68	1	Quick disconnect male	912331
69	1	Hydraulic hose assembly	202290
70	1	Quick disconnect female	912320
71	1	hydraulic hose assembly	202291
72	1	Quick disconnect male	912321
73	1	Hydraulic hose assembly	202291
74	1	Hydraulic hose assembly	202297
75	1	Hydraulic adaptor	912525
76	1	Hydraulic adaptor	912404
77	1	hydraulic adaptor	912454
78	1	hydraulic adaptor	912454
79	1	hydraulic adaptor	912454
80	1	hydraulic adaptor	912454
81	1	hydraulic adaptor	912404
82	1	flat washer	915560
83	1	bolt	915050
84	1	nylon lock nut	915455
85	2	flat washer	915560
86	1	Plug	500312
87	1	Reducer bushing	500393
88	1	Fuel hose	202175
89	56	liters oil for hydraulic tank	909075

ALL SEASONS EQUIPMENT

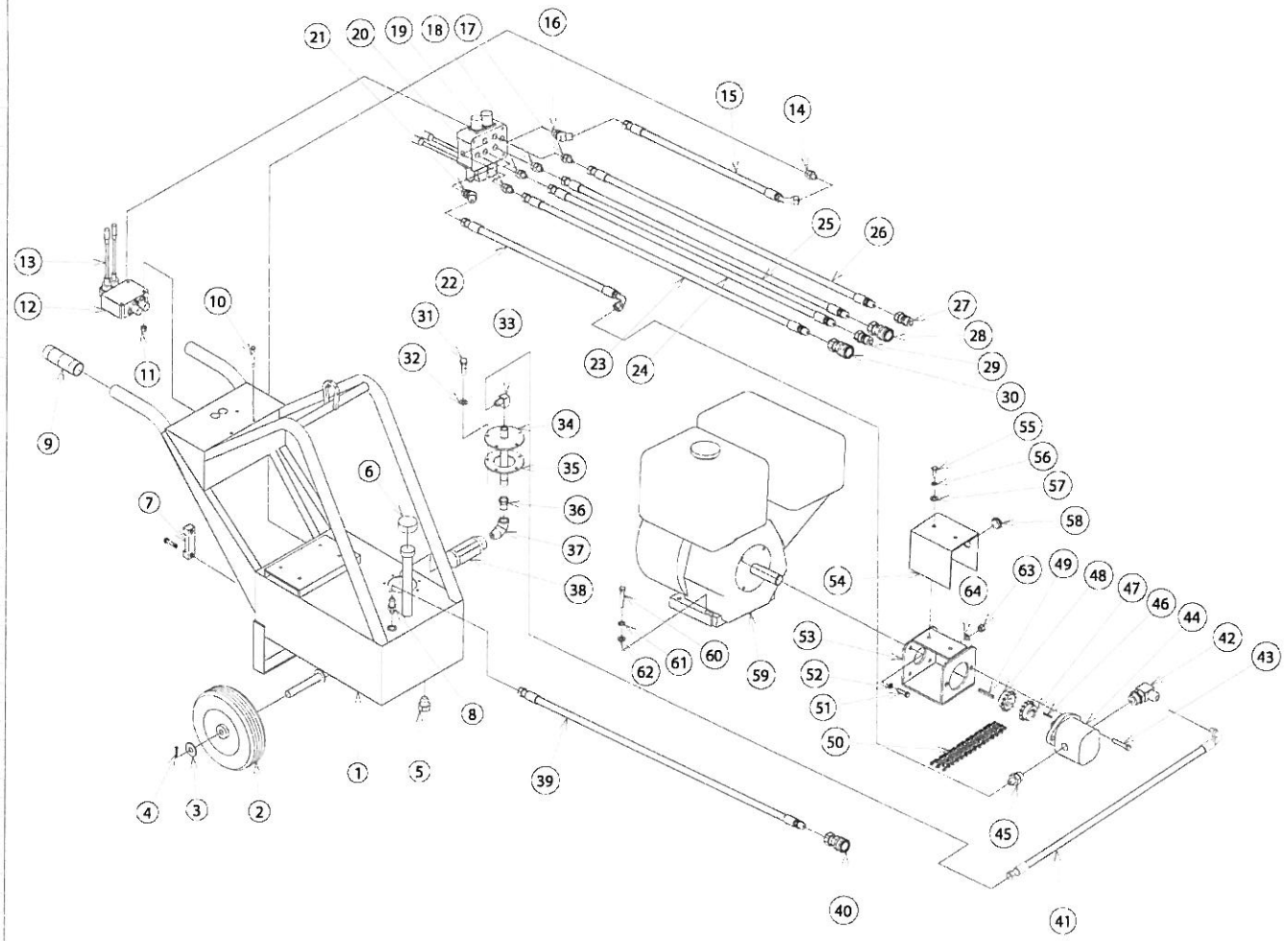
HYD-SWING 2000 DOUBLE LINE

BOM#102126	DRW BY: TONY LEAL
DATE: MAR/2006	DRWG: SH POWERUNIT-02.DFT

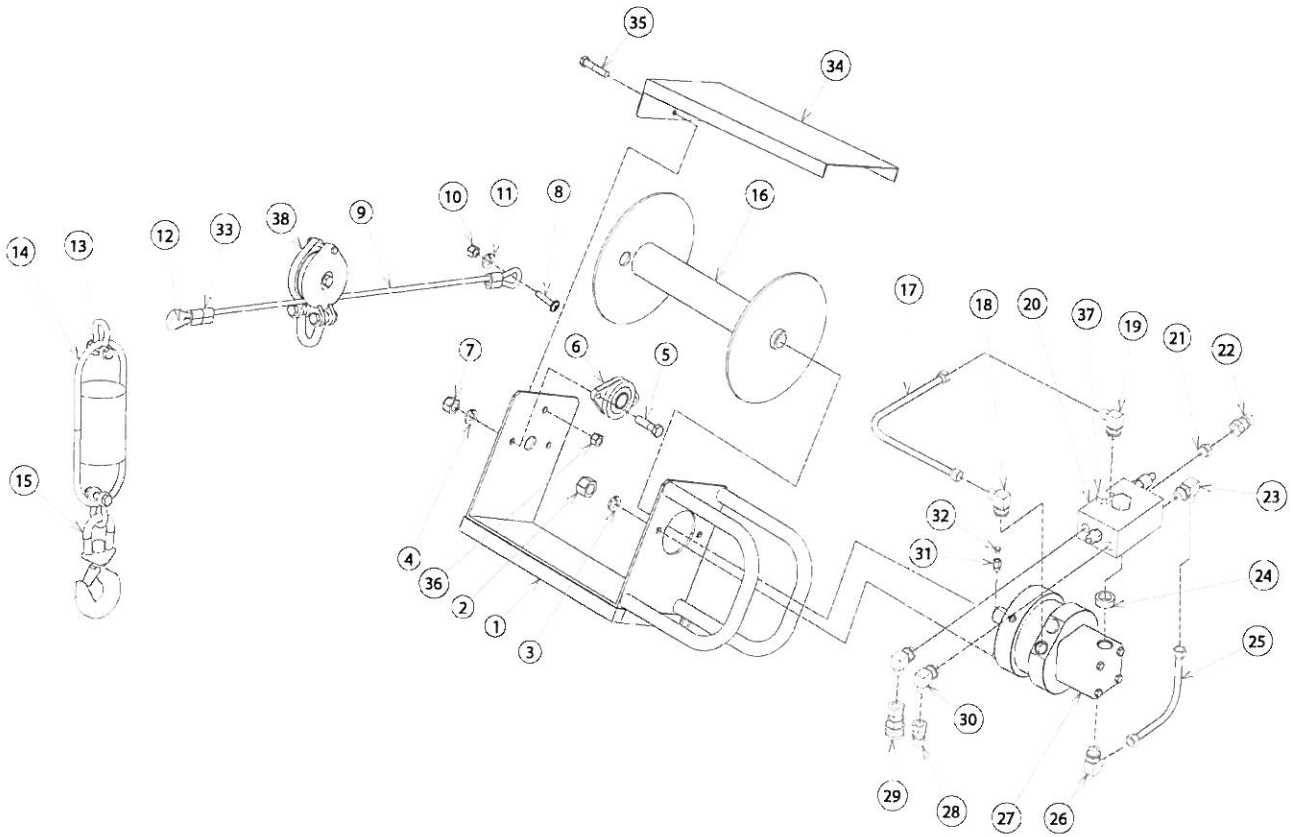
HYDRAULIC POWER PACK FOR 2000 SWING HOIST DOUBLE LINE



INDEX	NB.	DESIGNATION	REFERENCE
1	1	Power pack frame only no battery box	202163
2	2	Wheel	910327
3	1	Flat washer	915575
4	2	cutter pin	915800
5	1	Plug	500312
6	1	Filler breather cap	912100
7	1	Site level gauge	912111
8	1	Hydraulic adaptor	912515
9	2	Plastic grip	909052
10	3	Bolt	915070
11	3	Nylon lock nut	915455
12	1	Hydr-Valve	912203
13	2	Levers-hydraulic valve	912213
14	1	Hydraulic adaptor	912525
15	1	Hydr-hose assembly	202297
16	1	Hydraulic adaptor	912404
17	1	Hydraulic adaptor	912454
18	1	Hydraulic adaptor	912454
19	1	Hydraulic adaptor	912454
20	1	Hydraulic adaptor	912454
21	1	Hydraulic adaptor	912404
22	1	Hydr-hose assembly	202293
23	1	Hydr- hose assembly	202290
24	1	Hydr- hose assembly	202290
25	1	Hydr-hose assembly	202291
26	1	Hydr-hose assembly	202291
27	1	Quick disconnect male	912321
28	1	Quick disconnect female	912320
29	1	Quick disconnect male	912331
30	1	Quick disconnect female	912330
31	7	Bolt	915050
32	7	Flat washer	915560
33	1	Hydraulic adaptor	912430
34	1	Suction tube	202158
35	1	Gasket-suction tube	912115
36	1	Reducer bushing	500393
37	1	Street elbow - 90 degree	500258
38	1	Suction strainer	912120
39	1	Hydr-hose assembly	202192
40	1	Quick disconnect female	912325
41	1	Hydr-hose assembly	202295
42	1	Hydraulic adaptor	912421
43	2	Bolt	915220
44	1	Hydraulic pump	912010
45	1	Hydraulic adaptor	912480
46	1	Key	911363
47	1	Coupling sprocket	911353
48	1	Coupling sprocket	911352
49	1	Key	911361
50	1	Chain for coupling	911351
51	4	Bolt	915053
52	4	lock washer	915635
53	1	Pump mount bracket	912040
54	1	Cover-Pump mount	912046
55	2	Bolt	915035
56	2	Lock washer	915635
57	2	Flat washer	915560
58	1	Hole plug	910450
59	1	Engine	109500
60	4	Bolt	915135
61	4	Lock washer	915640
62	4	Flat washer	915562
63	2	nut	915485
64	2	Lock washer	915655



ALL SEASONS EQUIPMENT	
HYDR-SWING HOIST 1500 DOUBLE	
BOM# 102125	DRWN BY: TONY LEAL
MARK 06	SH-POWERUNIT-03.DFT
DATE	SHEET
PARTS FOR 1500 DOUBLE SW HOIST	



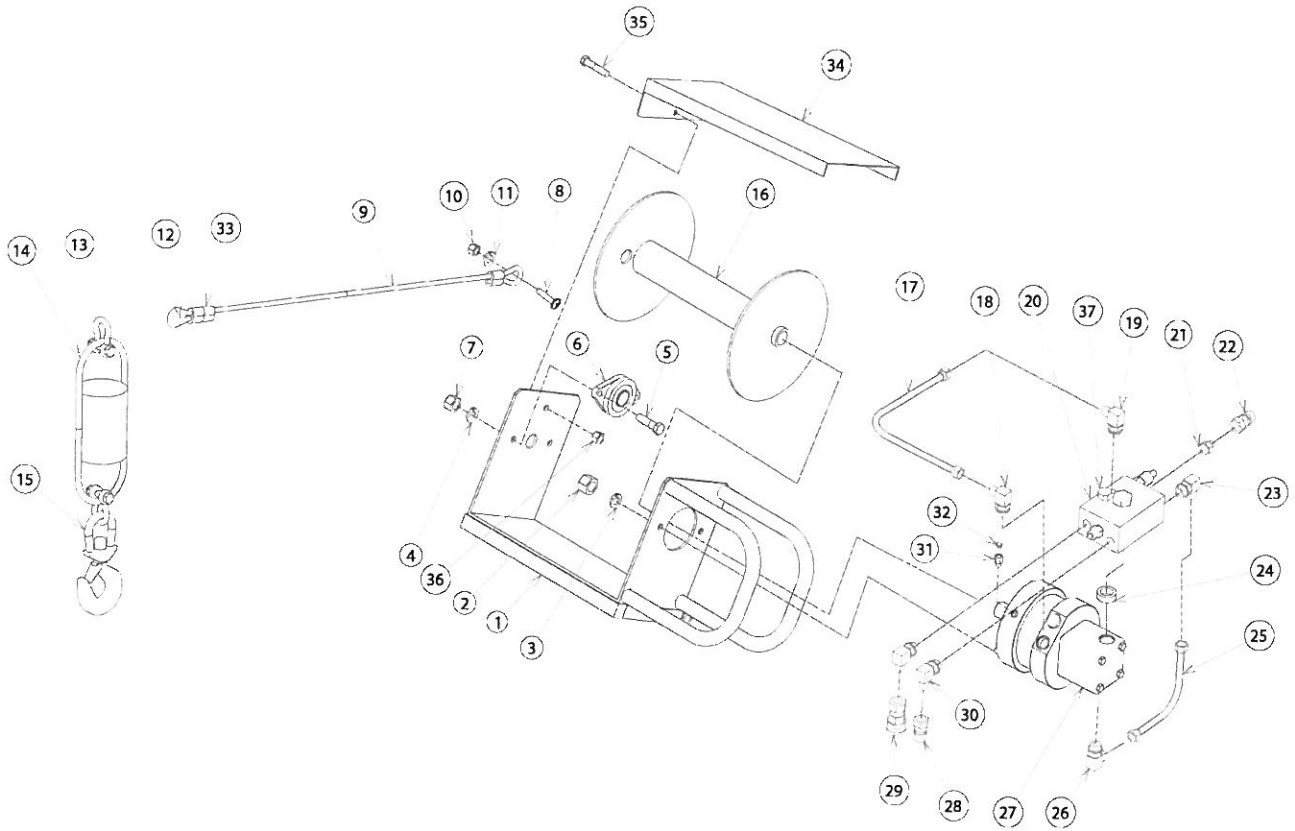
INDEX	NB.	DESIGNATION	REFERENCE
1	1	Winch frame	202256
2	2	Nut 12mm 1.25	-
3	2	lock washer 12mm	-
4	2	lock washer	915655
5	2	bolt	915215
6	1	Bearing	911211
7	2	nut	915485
8	1	Carriage bolt	915210
9	200	Cable	202060
10	1	nut	915485
11	1	Flat washer	915565
12	1	thimble	202083
13	2	Sheckle	202075
14	1	Cable counterweight	202155
15	1	Swivel hook	202068
16	1	Cable drum-winch	202255
17	1	Hydr-tubing assembly	202240
18	1	Hydraulic adaptor x 90 deg	912415
19	1	Hydraulic adaptor x 90 deg	912413
20	1	Hydraulic manifold assembly	912270
21	1	Hydr- adaptor	912452
22	1	Quick disconnect male	912326
23	1	Hydraulic adapter-90deg	912414
24	1	Spacer tube	202235
25	1	Hydraulic tubing assembly	202245
26	1	Hydraulic adapter x 90deg	912416
27	1	Hydraulic motor-brake	912015
28	1	Quick disconnect male	912321
29	1	Quick disconnect female	912320
30	2	hydraulic adaptor x 90deg	912595
31	1	Hydraulic adaptor	912441
32	1	Hydraulic breather plug	912440
33	3	Aluminum ovals	202093
34	1	Cover- winch	202259
35	1	Bolt	915050
36	1	Nylon lock nut	915455
37	1	Hydraulic adaptor- plug	912506
38	1	Cable block vertical	202052

ALL SEASONS EQUIPMENT

HYDR-WINCH DOUBLE LINE

BOM# 202250	TONY LEAL (DRWN BY)
MAR/06 (DATE)	SH-WINCH-01.DFT (DRW#)

HYDR-WINCH PARTS



INDEX	NB.	DESIGNATION	REFERENCE
1	1	Winch frame	202256
2	2	Nut 12mm 1.25	-
3	2	lock washer 12mm	-
4	2	lock washer	915655
5	2	bolt	915215
6	1	Bearing	911211
7	2	nut	915485
8	1	Carriage bolt	915210
9	200	Cable	202062
10	1	nut	915485
11	1	Flat washer	915565
12	1	thimble	202086
13	2	Sheckle	202075
14	1	Cable counterweight	202155
15	1	Swivel hook	202068
16	1	Cable drum-winch	202254
17	1	Hydr-tubing assembly	202240
18	1	Hydraulic adaptor x 90 deg	912415
19	1	Hydraulic adaptor x 90 deg	912413
20	1	Hydraulic manifold assembly	912270
21	1	Hydraulic adaptor-straight	912452
22	1	Quick disconnect male	912326
23	1	Hydraulic adaptor-90deg	912414
24	1	Spacer tube	202235
25	1	Hydraulic tubing assembly	202245
26	1	Hydraulic adaptor x 90deg	912416
27	1	Hydraulic motor-brake	912017
28	1	Quick disconnect male	912321
29	1	Quick disconnect female	912320
30	2	hydraulic adaptor x 90deg	912595
31	1	Hydraulic adaptor	912441
32	1	Hydraulic breather plug	912440
33	3	Aluminum oval	202096
34	1	Cover- winch	202259
35	1	Bolt	915050
36	1	Nylon lock nut	915455
37	1	Hydraulic adaptor- plug	912506

ALL SEASONS EQUIPMENT	
HYDR-WINCH 2000 SINGLE	
BOM# 202252	TONY LEAL (DRW BY)
MAR/06 (DATE)	SH-WINCH-02.DFT (DRW)
HYDR-WINCH PARTS	

Appendix E: Safety Stickers

ALL SEASONS EQUIPMENT

TEL: 1-888-308-4763

1500 HYDRAULIC SWING HOIST

a) Make sure all pins on track and power unit are properly placed and locked.
b) **IMPORTANT VERIFY THAT ALL NUTS, BOLTS AND PINS ON FRAME ARE PROPERLY FASTENED!!! IF NUTS & BOLTS ARE LOOSE, FOR YOUR OWN SAFETY MAKE SURE THEY ARE TIGHTENED!!**
d) Fences on Frame must be swung outwards, to protect operation from accidentally walking off roof edge while operating Hoist.
e) Now you must place counter weights on rear weight base. Use 11/2 of the weight you are lifting.
Example: If you are lifting 800lb., place 1200pounds of counter weights.

WARNING: KEEP IN MIND THAT THE MAXIMUM RATED LOAD ON THE HOIST IS 1500 POUNDS!!!

f) Check hoist cable for broken strands. If any are found cable should be replaced.
g) Grease all moving parts on the hoist power unit (drum, bearings and pulleys) etc.
h) Check hoist braking system for proper operation.
i) Engine oil level should be checked before starting. For any other engine maintenance, please refer to the engine manual.
j) **You are now ready to start engine**

WARNINGS
ALWAYS TEST HOIST LIFTING WITH SMALL AMOUNT OF WEIGHT, BEFORE YOU LIFT VERY HEAVY OBJECTS.

2000 HYDRAULIC SWING HOIST

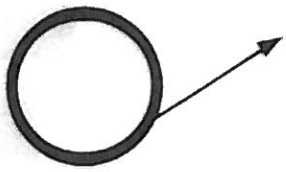
a) Make sure all pins on track and power unit are properly placed and locked.
b) **IMPORTANT VERIFY THAT ALL NUTS, BOLTS AND PINS ON FRAME ARE PROPERLY FASTENED!!! IF NUTS & BOLTS ARE LOOSE, FOR YOUR OWN SAFETY MAKE SURE THEY ARE TIGHTENED!!**
d) Fences on Frame must be swung outwards, to protect operation from accidentally walking off roof edge while operating Hoist.
e) Now you must place counter weights on rear weight base. Use 11/2 of the weight you are lifting.
Example: If you are lifting 800lb., place 1200pounds of counter weights.

WARNING: KEEP IN MIND THAT THE MAXIMUM RATED LOAD ON THE HOIST IS 2000 POUNDS!!!

f) Check hoist cable for broken strands. If any are found cable should be replaced
g) Grease all moving parts on the hoist power unit (drum, bearings and pulleys) etc
h) Check hoist braking system for proper operation.
i) Engine oil level should be checked before starting. For any other engine maintenance, please refer to the engine manual.
j) **You are now ready to start engine**

WARNINGS
ALWAYS TEST HOIST LIFTING WITH SMALL AMOUNT OF WEIGHT, BEFORE YOU LIFT VERY HEAVY OBJECTS.

WARNING



HOIST CABLE IS TO RUN OFF OF BOTTOM OF CABLE DRUM

HIGH OIL LEVEL
DO NOT OVER FILL

WARNING
PLACE BALLAST HERE

INSTRUCTION MANUAL ENCLOSED

* SAFETY FIRST *

ALWAYS READ YOUR MANUAL BEFORE OPERATING THIS MACHINERY. INJURY OR DEATH MAY RESULT IF THIS PRODUCT IS MISUSED IN ANY WAY.

ALL SEASONS EQUIPMENT, Div. of ESKO Mfg. Ltd., relies upon the purchaser to see that the manual instructions are made clear to the persons who are operating this machine.

WHEN WORKING WITH HOISTS OR WINCHES OR HOOKING AND ARRANGING LOADS KEEP OUT FROM UNDER THE LOAD OR OUT OF THE LINE OF FORCE OF ANY LOAD. THIS PRODUCT IS NOT DESIGNED FOR LIFTING PEOPLE NOR LIFTING THINGS OVER PEOPLE. DO NOT WRAP HOIST ROPE AROUND THE LOAD. LOAD MUST ATTACH TO LINE BY LIFT RINGS, PALLET FORK SLINGS OR OTHER SUITABLE MEANS. ON LOADS OF 1200LBS OR MORE, USE FOLD OUT LOCK EXTENSION ON A-FRAME TOWER. BE CERTAIN PIN IS INSERTED TO LOCK.

HYDRAULIC FLUID

Use MOTOR OIL as Hydraulic Fluid.

SUMMER - Above 32° F / 0° C
Use - 10W40 Low detergent

WINTER - Below 32° F / 0° C
Use - 10W30 Low detergent