

OPERATION AND MAINTENANCE MANUAL

“WILDCAT”

MODEL SL-20



Snorkel **ECONOMY**

A FIGGIE INTERNATIONAL COMPANY

ST. JOSEPH, MISSOURI

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SL-20 OPERATION AND MAINTENANCE MANUAL

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ELECTRICAL HAZARD**⚡ DANGER****THE WILDCAT SL-20 AERIAL WORK PLATFORM IS NON-INSULATED.**

AVOID CONTACT WITH ELECTRICAL CONDUCTORS UP TO 300 VOLTS. MAINTAIN AT LEAST 10 FEET CLEARANCE FROM CONDUCTORS OF 300 TO 50,000 VOLTS.

If the platform or supporting structure or any other conductive part of the machine contacts a non-insulated high-voltage electrical conductor, the result may be **SERIOUS INJURY** or **DEATH** for persons on or near the unit.

If in contact with a live electrical conductor, the entire unit will be charged to the voltage of the conductor. If this happens the platform operator should remain on the machine and use caution to not contact any other structure or object within his reach. This includes the ground, adjacent buildings, poles, and any object not a part of the WILDCAT SL-20. Such contact would make his body a conductor to the adjacent object creating an electrical shock hazard with possible **ELECTROCUTION** and **DEATH**. If the platform is in a position where the operator could leave the machine, he **MUST** do so by **JUMPING** so as to not be in contact with the machine and the ground at the same time.

Further, if in contact with a live conductor, the platform operator **MUST** warn others on the ground in the vicinity of the machine to **STAY AWAY** from the machine, since their body could, again, form the path for electricity to ground creating an electrical shock hazard with possible **ELECTROCUTION** and **DEATH**.

Under no circumstances shall any person on the ground attempt to operate the ground controls when the platform structure is in contact with electrical wires or if there is a danger of such contact.

Additionally, it **MUST** be a specific duty of the WILDCAT SL-20 operator to warn others working in the area around the unit to be always aware of overhead wires and possible contact with them. The operator **MUST** also be ready to warn others on the ground and advise them to stay away from the WILDCAT SL-20 when the situation demands.

Even if a wire is present that is supposed to be "de-energized", it should be treated as "LIVE" and given a wide berth. **"PLAY IT SAFE"**.

To assist in alerting personnel relative these electrical hazards, decals have been placed at strategic locations on each machine. Additional decals are available if it is desired to place them in other locations.

In conclusion, personnel working on or near the WILDCAT SL-20 unit must be continuously aware of electrical hazards, recognizing that **SERIOUS INJURY** or **DEATH** could result if contact with an electrical wire does occur.

VOLTAGE RANGE (Phase to Phase)	MINIMUM SAFE APPROACH DISTANCE	
	(Feet)	(Meters)
0 to 300V	AVOID CONTACT	
Over 300V to 50KV	10	3.05
Over 50KV to 200KV	15	4.60
Over 200KV to 350KV	20	6.10
Over 350KV to 500KV	25	7.62
Over 500KV to 750KV	35	10.67
Over 750KV to 1000KV	45	13.72

INTRODUCTION

The WILDCAT SL-20 scissorlift platform incorporates built-in safety features, and has been factory tested for compliance with Snorkel-Economy specifications and industry standards. However, any personnel lifting device can be potentially dangerous in the hands of untrained or careless operators.

Training is vitally important and **MUST** be carefully supervised by a skilled, responsible party.

Training **MUST** include a thorough review of this manual and the WILDCAT SL-20 machine, followed by supervised operating practice that simulates conditions and maneuvers expected in actual working situations.

An operator shall be considered "Qualified" **ONLY** after sufficient supervised training and practice proves him able to control the WILDCAT SL-20 smoothly, position it accurately, and he understands all **WARNINGS** and **CAUTIONS** in this manual and on the machine to be observed for responsible and safe operation.

Observance of the following **RULES** will help to assure the safety of personnel and help to prevent needless "down" time because of damaged equipment.

- 1 Only "**Qualified Operators**" shall be permitted to operate the equipment.
- 2 "**Qualified Operators**" must be thoroughly familiar with all operating instructions and equipment capabilities and limitations.
- 3 All safety precautions must be strictly adhered to.
- 4 Repairs and adjustments shall be made only by qualified trained personnel.
- 5 No modification shall be made to the equipment without prior written consent of Snorkel-Economy Engineering Department.

CAUTION

DO NOT operate this equipment unless you are an "Assigned" & "Qualified Operator" and have read and thoroughly understand all information given in this Operation And Maintenance Manual, and on all **CAUTION** and **WARNING** signs on the unit.

For additional information contact:

Snorkel-Economy
P O Box 4065
St Joseph Mo 64504-0065
Phone: 913-989-4481

Every person who maintains, inspects, tests or repairs these units, and every person supervising any of these functions, **MUST** be properly trained and **MUST** read and understand this entire manual. The manual **MUST** be kept available for ready reference.

Costly repairs and down time can be prevented by following a regular maintenance program. Regular maintenance is the key to safe, trouble-free operation and extended machine life.

This manual provides information concerning maintenance guidelines, and inspection procedures that will keep your WILDCAT SL-20 in good operating condition.

Since work platforms are operated under many different conditions, it is difficult to define a single time schedule for maintenance that is appropriate for every machine. Recommended intervals are based on a unit running approximately fifty (50) hours a month as average normal use. It is understood that some units will see more use, others less, so it **MUST** be the user's responsibility to adjust requirements as necessary to meet individual conditions and usage.

Any alteration and/or modification of a unit must have written approval from the Engineering Department of Snorkel-Economy, A Figgie International Company.

Information contained in this manual concerns only current WILDCAT SL-20 units, and the right is reserved to make changes at any time without obligation.

Should there be a question concerning anything covered in this manual, please contact the Snorkel-Economy Service Department, Elwood Kansas, telephone 1-800-255-0317 or 913-989-4481.

MAXIMUM PLATFORM HEIGHT	20 FEET - 0 INCHES
WORKING HEIGHT - NOMINAL	26 FEET - 0 INCHES
PLATFORM SIZE	30 x 90 INCHES
ROLL-OUT DECK EXTENSION	36 INCHES
WEIGHT (APPROXIMATE)	3,600 POUNDS
RATED WORK LOAD	
TOTAL	800 POUNDS
ROLL-OUT EXTENSION DECK	250 POUNDS
DRIVE SPEEDS	
SPEED 3, PLATFORM LOWERED	2.1 M.P.H.
SPEED 2, PLATFORM LOWERED	1.2 M.P.H.
SPEED 1	0.4 M.P.H.
GRADEABILITY	20%
PLATFORM LIFT SPEEDS	
SPEED 3	20 SECONDS
SPEED 2	35 SECONDS
SPEED 1	85 SECONDS
TURNING RADIUS	
OUTSIDE	101 INCHES
INSIDE	30 INCHES
OVERALL LENGTH	91 INCHES
OVERALL WIDTH	33 INCHES
OVERALL HEIGHT, STOWED	78½ INCHES
PLATFORM HEIGHT, STOWED	37½ INCHES
GUARDRAIL HEIGHT	
MAIN PLATFORM	41 INCHES
EXTENSION DECK	40 INCHES
TOEBOARD HEIGHT	6 INCHES
WHEELBASE	74 INCHES
GROUND CLEARANCE	
PLATFORM RAISED/POTHOLE PROTECTOR LOWERED	¾ INCHES
PLATFORM STOWED/POTHOLE PROTECTOR RAISED	3¼ INCHES
TIRES - (SOLID RUBBER)	16-4.00 x 8
ELECTRICAL SYSTEM	24 VOLT DC
HYDRAULIC SYSTEM MAX. PRESSURE	2750 PSI

OSHA & ANSI STANDARDS:

The WILDCAT SL-20 scissorlift has been built in so far as we are aware, to conform with OSHA and ANSI Rules and Regulations.

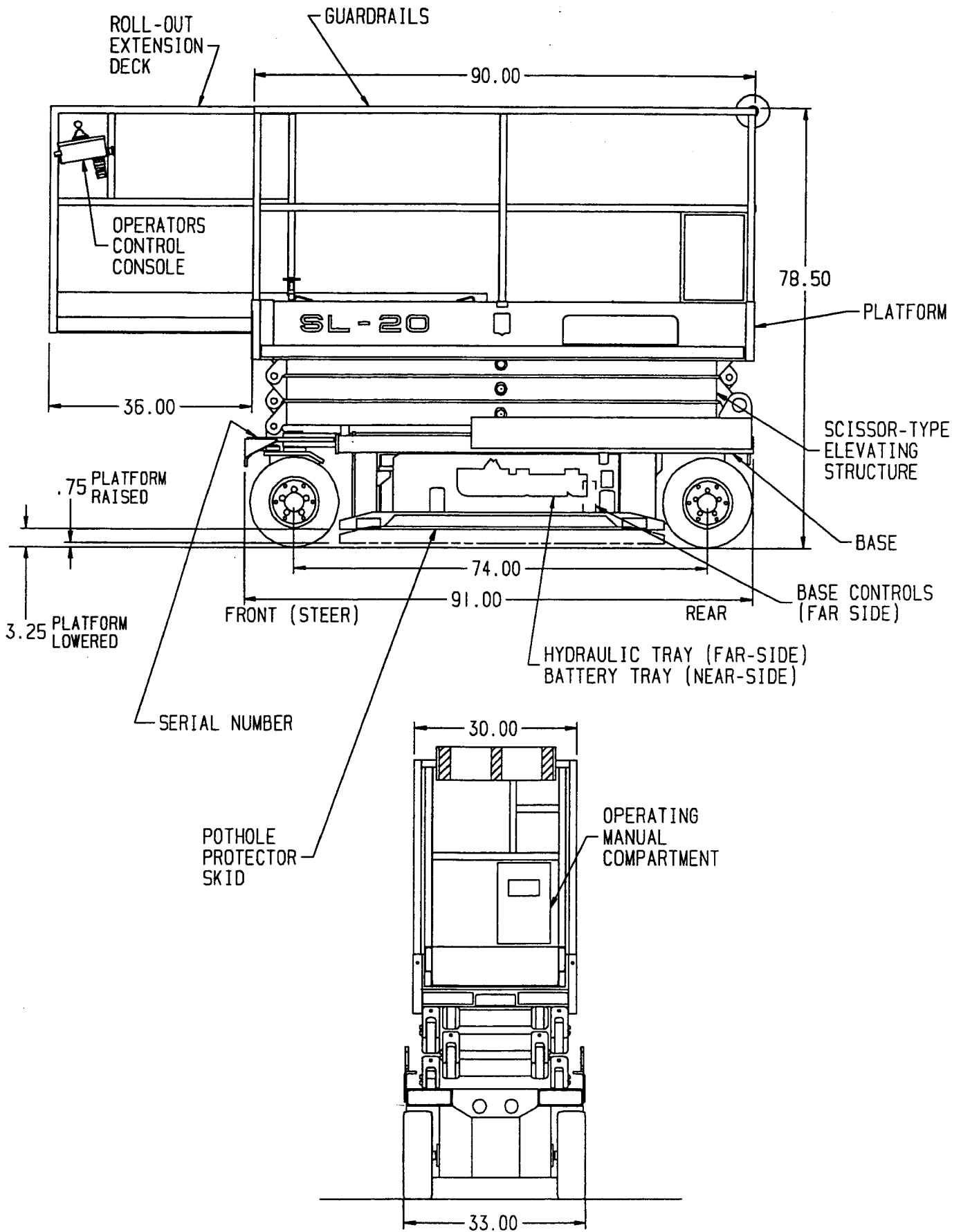
- Paragraph 1910.67 Title 29, C.F.R.
Vehicle-mounted Elevating and Rotating Work Platforms - Labor
- OSHA Paragraph 1926.556 Title 29, C.F.R.
Aerial Lifts - Construction
- ANSI Standard A92.6-1990
Self-Propelled Elevating Work Platforms
- CSA Standard CAN 3-B354.2-M82
Self Propelled Elevating Work Platforms for use on Paved/Slab Surfaces

⚠ CAUTION

It is imperative that all owners and users of the WILDCAT SL-20 scissorlift read, understand and conform to these regulations. Ultimate compliance to OSHA regulations is the responsibility of the employer utilizing the equipment.

ANSI Standard A92.6-1990 clearly identifies requirements of all parties who may be involved with aerial work platforms.

A reprint of the Responsibilities of Dealers, Owners, Users, Operators, Lessors and/or Lessees is available from Snorkel-Economy dealers or factory at no cost upon request.



This particular portion of the Operator's Manual contains information concerning the operating characteristics of the controls, rated platform work load and instructions on maintaining stability. These paragraphs should be referred to often. A good understanding of the equipment limitations and capabilities will assure maximum operating efficiency and minimize chances of hazardous operation.

RATED PLATFORM WORK LOAD:

Total 800 Pounds
Roll-out extension deck 250 Pounds

The rated platform work load listed above, is the combined weight of all personnel, their tools and other equipment carried by the platform and within its floor dimensions.

The rated platform work loads above, are applicable in all positions when on a firm, level surface, and include an adequate safety margin as required by OSHA and ANSI.

DO NOT diminish this safety factor by overloading.

DO NOT carry loads from any point outside of the platform floor.

⚠WARNING

Proper stability of unit is based on the standard unit and all of its components as supplied from the factory.

Modification of the unit, either the addition or removal of parts and/or weight, can greatly affect the platform stability and safety.

DO NOT under any circumstances operate the unit with batteries or other weight removed.

STEERING:

Steering is accomplished with a hydraulic cylinder. The steering axle is not self-centering, therefore, steer control direction **MUST** be reversed when turn is completed in order to return to straight line travel.

DRIVE:

Drive is accomplished with two (2) high torque hydraulic drive motor assemblies, one (1) on each front steering yoke. Unit is equipped with dual spring applied, hydraulically released parking brakes on rear wheels that release when hydraulic drive is operated.

LIFT SPEEDS:

Lift speeds on the WILDCAT SL-20 are controlled by the use of the SPEED select switch at the platform operator's control console. Any of the three speeds can be used to control upward lift rate. Downward speed is not affected by SPEED select switch.

DRIVE SPEEDS:

Drive speeds on the WILDCAT SL-20 are controlled by the use of the SPEED select switch at the platform operator's control console, (same as lift speed). Any of the three speeds can be operated when the platform is in lowered position.

ELEVATED DRIVE SPEED INTERLOCK:

Drive speed ranges are interlocked through a limit switch that senses scissor arm position at the base frame. Elevating the platform above approximately 5 feet automatically causes the two fastest speed ranges (speed positions 2 and 3) to be locked out and only 0.4 MPH speed (position 1) is operable regardless of SPEED switch position.

⚠WARNING

DO NOT alter, disable, or in any way override the drive speed interlock system.

DO NOT use the machine if it drives faster than 1/2 mile per hour (25 feet in 30 seconds) when elevated above 6 feet with SPEED switch in position 2 or 3.

DRIVE/LIFT LEVEL SENSOR INTERLOCK:

When the platform is elevated above approximately 5 feet, lift and drive functions are interlocked through a level sensor system. If the machine's base is tilted more than 2 degrees, this interlock automatically prevents controls from operating the lift (UP) or drive functions; and instead, sounds an alarm when those controls are activated.

The operator must then lower the platform to allow drive system function, and move the machine to a level surface.

Note: This interlock and alarm action may also be caused by the Pothole Protection interlock, as discussed in the following sections.

**DRIVE/LIFT LEVEL SENSOR INTERLOCK
(Continued):**

⚠ WARNING

The WILDCAT SL-20 is to be elevated **ONLY** on firm, flat, level surfaces.

DO NOT alter, disable, or in any way override the level sensor interlock system.

DO NOT use boards, or other temporary means to support or level the machine.

DO NOT use the machine if the Drive/Lift level sensor interlock system is not working properly.
(See page 17 for test procedure).

POTHOLE PROTECTION SYSTEM:

The WILDCAT SL-20 is equipped with movable frame "skids" that automatically lower and lock at about ¾ inch ground clearance when the platform is elevated above 5 feet, and automatically lift to about 3¼ inch ground clearance when the platform is fully lowered. The reduced ground clearance under this "Pothole Protection" system limits the tilt angle the elevated machine can reach if one wheel drops into a hole or pavement interruption, greatly reducing the likelihood of a resulting tipover accident.

The presence of this equipment **DOES NOT** justify being careless about working near holes or drop-offs.

⚠ DANGER

DO NOT drive or position machine for elevated use within 4 feet of any drop-off, hole, or other tipover hazard.

**DRIVE/LIFT POTHOLE PROTECTOR
INTERLOCK:**

When elevated above approximately 5 feet, lift (UP) and drive functions are interlocked through a limit switch that senses the fully down and locked position of the Pothole Protection linkage. If an obstruction under the skids or some other impairment prevents the system from fully lowering to locked position, this interlock prevents controls from operating lift (UP) or drive functions; and instead sounds an alarm when those controls are activated similar to Level Sensor interlock.

**DRIVE/LIFT POTHOLE PROTECTOR
INTERLOCK (Continued):**

After fully lowering the platform, the operator should then check for obstructions under pothole protector skids and check operation of the Pothole Protector using base controls.
(See page 17 for test procedure).

⚠ WARNING

DO NOT alter, disable, or in any way override the Pothole Protector or its interlock system.

DO NOT use the machine if the Pothole Protector or its interlock system are not working properly.

BRAKING:

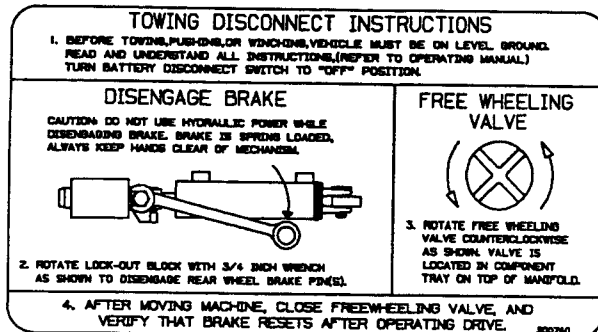
Braking action to stop and hold the machine is produced by two types of operating systems:

- Hydraulic wheel drives on the front (steer) wheels produce stopping action when the drive hydraulics are de-energized. A "cushion cylinder" in the hydraulic drive system allows this dynamic braking action to bring the machine to a smooth stop before the parking brake system engages.
- Spring applied, hydraulic pressure released parking brake systems on each rear wheel produce holding action when the drive hydraulics are de-energized. A restrictor valve provides delay in the spring-applied pin engagement speed, allowing time for the hydraulic wheel drives to stop the machine.

Both of these systems operate automatically to stop and hold the machine when drive controls are released or power is interrupted. Both systems must therefore be manually disengaged for towing or winching the machine.

BRAKE DISENGAGE PROCEDURE:

- 1 Before manually disengaging the parking brakes, be sure work platform is on level ground.
- 2 Turn battery disconnect switch to the "OFF" position.
- 3 Using a 3/4 inch wrench, rotate each brake pin's lock-out block 90° to retract the pin from the wheel lugs. Remove wrench immediately, see illustration below.



- 4 Open free wheeling valve by turning valve knob counter-clockwise. The free wheeling valve is located on the hydraulic manifold assembly in the right hand tray. It is accessed by unlatching, then swinging out the tray. Turning the valve handle counter-clockwise to a fully opened position allows hydraulic fluid to flow through the wheel motors, providing "free wheeling" so the work platform can be towed or pushed without damaging the wheel motors. When towing, **DO NOT** exceed 2 MPH.
- 5 After moving machine, close free-wheeling valve fully and operate drive to reset parking brakes or manually reset using a wrench. Verify that brakes reset properly.

⚠ WARNING

ALWAYS return free wheeling valve and parking brakes to normal operating condition **IMMEDIATELY** after moving the machine. Failure to do so may result in an accident if an operator unaware of the disconnect condition operates the machine with the drive and brakes disabled.

SAFETY BAR:

The WILDCAT SL-20 is equipped with a swing up safety bar to support the platform should access to mechanisms within the scissor arm structure or the base frame be required. A safety bar decal outlines proper operation of the safety bar.

⚠ DANGER

DO NOT reach through the scissors arm mechanism unless the safety bar is properly positioned. **INJURY** or **DEATH** could occur if the platform is not supported by the safety bar and should suddenly drop onto personnel working within the scissor arms or under the raised platform.

MANUAL LOWERING CABLE:

A manual lowering cable is provided for use in the case of an emergency or in the event the platform is to be lowered without the use of the standard electrical/hydraulic system. Refer to emergency operation procedures (page 12 in this manual) for proper lowering cable operation.

⚠ CAUTION

Beware of descending platform and keep hands and arms clear of scissor structure during platform lowering procedure.

Use extreme caution not to lower platform onto personnel, obstructions, or electrical wires under the elevated platform.

SWING-OUT TRAYS:

Batteries and hydraulic components on the WILDCAT SL-20 are enclosed within swing-out trays on each side of the machine. For access to these components when the machine is lowered, position machine on a hard level surface and pull handle located near rear wheel to rotate pothole protection skid away from tray, unlatch and open tray. If platform is elevated approximately 5 feet, the pothole protection skids are lowered and trays will swing-out without use of the handle.

⚠ CAUTION

Swing-out trays **MUST** be closed when platform is elevated more than 8 feet.

BASE CONTROL STATION:

Master switches and controls for operating the WILDCAT SL-20 from ground level are housed in a sealed electrical enclosure on the right side swing-out tray. A control access opening in the tray is fitted with a sliding door.

This door **MUST** be open during operation of the machine to allow ready access to the base control station. The tray has provisions to allow a padlock to be used to lock the access door in its closed position for securing the machine against unauthorized use.

⚠WARNING

DO NOT leave machine unattended with Base Control Station switches ON or with access door unlocked.

1 BATTERY DISCONNECT switch:

This switch, when in "OFF" position, disconnects power to all control circuits as well as the pump/motor contactor. Switch must be in "ON" position to operate any electrical control function.

2 Base EMERGENCY stop switch.

Two position toggle type switch with red safety guard. Pushing red safety guard down over toggle switch disconnects power to all control circuits. Lift guard and push toggle switch up to restore power.

3 Platform/Base CONTROL SELECT switch:

Two position maintained toggle switch. To operate platform UP/DOWN functions from Base Control Station, this switch must be in "BASE" (down) position. To operate machine from Platform Control Station this switch must be in "PLATFORM" (up) position.

4 LIFT (up/down) switch:

Three position momentary toggle switch. This switch raises and lowers the platform when activated. To raise the platform, pull up on switch until desired height is reached. Release switch to stop. To lower platform, push down on toggle switch. As platform lowers, a lowering alarm will sound.

5 Circuit breaker reset buttons:

These push buttons are used for resetting circuit breakers in the event of a power overload or battery short to the frame. Circuit breakers are located inside swing-out tray, on hinged cover of Base Control enclosure box.

EMERGENCY LOWERING CONTROL:

The WILDCAT SL-20 uses a hydraulic lift cylinder with integral valving to provide holding ability not affected by hydraulic line failure. One valve is an electric solenoid valve that allows oil to flow out of the cylinder to lower the platform when energized by the operating control switches. The other valve is a manually operated type that is activated by a remote control cable routed to a "pull" handle located at the front (steer) end of the base frame. (See illustration on page 12).

This "Emergency Lowering" valve control may be used to lower the platform manually should there be an impairment to the use of the electrical lowering controls such as an electrical malfunction, battery power loss, or Base Control Station access difficulty.

It also is a convenient means of lowering the scissors arms onto the safety support bar. (See page 7).

PLATFORM CONTROL CONSOLE (JOYSTICK TYPE):

1 CONTROL SELECT - Drive/Platform switch:

Three position momentary toggle switch. To operate Lift/Lower functions, pull and hold toggle handle rearward while operating UP/DOWN toggle switch. To operate Drive/Steer functions, push and hold toggle handle forward with the heel of your hand while operating joystick with your thumb and fingers.

Note: Pump unit operates continuously when CONTROL SELECT switch is held forward in "DRIVE" position.

2 SPEED switch:

Three position maintained toggle switch controlling both lift (up) and drive speeds. To select drive or lift speed, position toggle in desired range; 1 (slow), 2 (med) or 3 (fast). If platform is elevated, drive speed is automatically limited to slow speed regardless of SPEED switch position.

3 Platform UP/DOWN switch:

Three position momentary toggle switch. This switch raises and lowers the platform when activated along with CONTROL SELECT switch. To raise the platform, pull up on switch until desired height is reached. Release switch to stop. To lower platform, push down on toggle switch. As platform lowers, a lowering alarm will sound.

CONTROLS AND FUNCTIONS

PLATFORM CONTROL CONSOLE (JOYSTICK TYPE) – (Continued):

4 Drive/Steer JOYSTICK:

Drive and steer functions are controlled by movement of joystick controller in the desired direction of travel while holding forward CONTROL SELECT switch. Steer and drive functions can be operated separately or simultaneously.

Note: The steering axle is not self-centering, therefore, steer control direction **MUST** be reversed when turn is completed in order to return to straight line travel.

5 EMERGENCY stop button:

A red "mushroom-head" shaped button switch will shut off power to the platform controls when pushed in. The button will remain in until reset. To restore power to the operator's control console, simply pull button outward to reset. This switch should be pushed in when controls are not in use to help protect against unintended control operation.

6 Operators horn button - (optional item):

This push button switch when depressed, sounds an audible horn.

PLATFORM CONTROL CONSOLE (TOGGLE SWITCH TYPE):

1 CONTROL SELECT - Drive/Platform switch:

Three position momentary toggle switch. To operate Lift/Lower functions, pull and hold toggle handle rearward while operating UP/DOWN toggle switch. To operate Drive/Steer functions, push and hold toggle handle forward with the heel of your hand while operating FORWARD/REVERSE and LEFT/RIGHT toggle switches with your thumb and fingers.

Note: Pump unit operates continuously when CONTROL SELECT switch is held forward in "DRIVE" position.

2 SPEED switch:

Three position maintained toggle switch controlling both lift (up) and drive speeds. To select drive or lift speed, position toggle in desired range; 1 (slow), 2 (med) or 3 (fast). If platform is elevated, drive speed is automatically limited to slow speed regardless of SPEED switch position.

PLATFORM CONTROL CONSOLE (TOGGLE SWITCH TYPE) – (Continued):

3 Platform UP/DOWN switch:

Three position momentary toggle switch. This switch raises and lowers the platform when activated along with CONTROL SELECT switch. To raise the platform, pull up on switch until desired height is reached. Release switch to stop. To lower platform, push down on toggle switch. As platform lowers, a lowering alarm will sound.

4 Drive FORWARD/REVERSE switch:

Three position momentary toggle switch. Drive functions, forward and reverse are controlled by movement of switch in the desired direction of travel while holding forward CONTROL SELECT switch. Release switch to stop.

5 Steer LEFT/RIGHT switch:

Three position momentary toggle switch. Steer functions, left and right, are controlled by movement of switch in the desired direction while holding forward CONTROL SELECT switch.

Note: The steering axle is not self-centering, therefore, steer control direction **MUST** be reversed when turn is completed in order to return to straight line travel.

6 EMERGENCY stop button:

A red "mushroom-head" shaped button switch will shut off power to the platform controls when pushed in. The button will remain in until reset. To restore power to the operator's control console, simply pull button outward to reset. This switch should be pushed in when controls are not in use to help protect against unintended control operation.

7 Operators horn button - (optional item):

This push button switch when depressed, sounds an audible horn.

Before each day's operation of the work platform, the operator **MUST** perform the general inspection as outlined in the Daily Maintenance (Operator's Inspection) chart.

The purpose of the operator's inspection is to keep the equipment in proper working condition and to detect any signs of malfunction during normal operations between scheduled maintenance checks.

While it may not be the operator's responsibility to perform mechanical maintenance, they **MUST** be thoroughly familiar with the unit since their own safety is involved.

Many costly maintenance jobs can be prevented through observance of the following by WILDCAT SL-20 operators.

DAILY MAINTENANCE (OPERATOR'S INSPECTION)

COMPONENTS	SERVICE REQUIRED
Personal Protective Devices	Visually Inspect (Condition)
Placards, Warnings, Control Markings	Visually Inspect (Condition)
Operation and Maintenance Manual	Visually Inspect (On Machine in Document Holder)
Pothole Protection/Safety Devices	Visually Inspect (Condition, Operation)
Parking Brakes	Check Operation
Bolts and Fasteners	Visually Inspect (Looseness)
Structural Damage & Welds	Visually Inspect (Weld Cracks, Dents)
Entry Chains or Gate	Check Operation
Guides, Rollers and Slides	Visually Inspect (Condition)
Tires and Wheels	Visually Inspect (Condition)
Battery Fluid Level	Check Fluid Level
Battery Terminals	Visually Inspect (Corrosion)
Operating and Emergency Controls	Visually Inspect (Operation)
Wiring Harnesses	Visually Inspect (Installation, Condition)
Hydraulic Leaks	Visually Inspect (Hoses, Tubes)
Hydraulic Oil	Check Fluid Level

⚠CAUTION

DO NOT operate a WILDCAT SL-20 series scissorlift that is known to be damaged or malfunctioning.

Defective components and/or equipment malfunctions jeopardize the safety of the operator and other personnel, and can cause extensive damage to the unit. Remember, a poorly maintained unit could become the greatest operational hazard you may encounter.

The following procedures are provided to aid WILDCAT SL-20 operating personnel in the proper operation of the unit.

JOYSTICK CONTROL CONSOLE:

Note: If unit is equipped with optional toggle switch control console, refer to page 9 for proper Drive and Steer operation.

- 1 Close and latch swing-out battery and hydraulic components side trays.
- 2 Place BATTERY DISCONNECT switch to "ON" position.
- 3 Make sure EMERGENCY STOP switch is in "ON" position.
- 4 Place Platform/Base select switch in the "BASE" (down) position.
- 5 Operate Lift UP/DOWN switch to make sure unit is functioning properly.
- 6 Place Platform/Base SELECT switch in the "PLATFORM" (up) position.
- 7 Enter work platform to prepare for platform operation.
- 8 Secure platform entrance gates or chains.
- 9 Reset EMERGENCY STOP button by pulling out on red "mushroom head".
- 10 To drive work platform, select desired speed; 1 (slow), 2 (med) or 3 (fast) using SPEED switch. Hold CONTROL SELECT switch forward in "DRIVE" position, use JOYSTICK to control direction of travel. To steer the machine, use JOYSTICK control to control direction of steer movement. Steer and drive functions can be operated separately or simultaneously.
- 11 To elevate the platform, select desired speed; 1 (slow), 2 (med) or 3 (fast) using SPEED switch, hold CONTROL SELECT switch in the "PLATFORM" (rearward) position and pull up on the UP/DOWN switch.
- 12 To lower the platform, hold CONTROL SELECT switch in the (rearward) "PLATFORM" position and push "down" on UP/DOWN switch.

Note: Speed selection: 1 (slow), 2 (med) or 3 (fast) for drive function can be changed while on the move.

Note: Speed selection: 1 (slow), 2 (med) or 3 (fast) for lift (UP) function can also be changed while on the move.

Note: SPEED switch does not affect lowering speed.

GENERAL OPERATION:

ALWAYS operate unit to provide the safest and most efficient use of the WILDCAT SL-20 scissorlift giving consideration to the following factors:

1 Type of Terrain

The WILDCAT SL-20 scissorlift is to be elevated **ONLY** on firm, flat, level surfaces.

WARNING

DO NOT elevate work platform with unit on soft, uneven, or sloped surfaces.

- 2 When operating controls, care **MUST** be taken that the platform is not lowered or brought into contact with buildings, obstructions, electrical wires, or personnel near the machine.

3 Rated Work Load:

Total..... 800 Pounds
Roll-Out Extension Deck 250 Pounds

The platform rated work load is the combined weight of all personnel, their tools and other equipment carried by the platform and within its floor dimensions.

4 Windy conditions.

WARNING

DO NOT operate the WILDCAT SL-20 series scissorlift in windy or gusty conditions.

5 Electrical wires and installations.

The WILDCAT SL-20 is a **NON-INSULATED** work platform.

DANGER

DO NOT operate near **ELECTRICAL** conductors. Regard all conductors as being energized. (See page 1 for more explanation of electrical hazards).

- 6 Emergency shutdown from the platform is accomplished by pushing in the **EMERGENCY STOP** button on the platform control box front. This switch overrides all other switches on the control box. Reset switch by pulling out on mushroom shaped head.

GENERAL OPERATION (Continued):

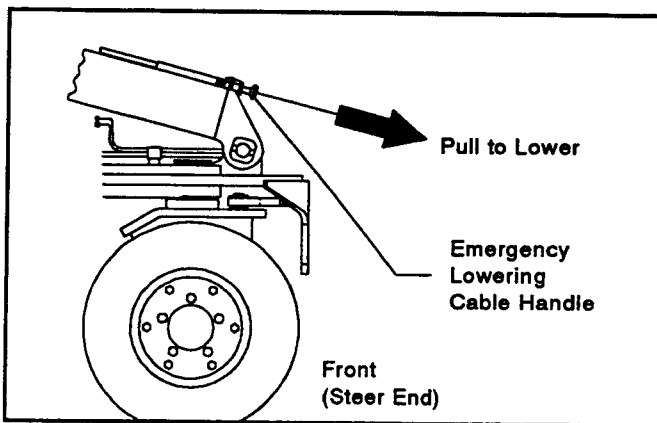
7 At the end of each day's work, the following procedure should be followed to stow and secure the WILDCAT SL-20 work platform.

- Operate controls to bring work platform to the fully lowered position.
- Turn battery disconnect switch to "OFF" position.
- Close and padlock Base Control access door.

Note: If unit is to be transported, follow procedures outlined under Transporting Work Platform to assure safe loading and unloading procedures.

EMERGENCY PLATFORM LOWERING PROCEDURES:

- 1 Locate emergency lowering cable pull handle on pinned end of lower scissor stack at front (steer) end of machine, (see illustration below).



Emergency Lowering Cable Pull Handle

- 2 Retract extension deck if possible.
- 3 Pull out cable handle to allow platform to descend. Return handle to normal position to stop.

⚠CAUTION

Beware of descending platform and keep hands and arms clear of scissor structure during emergency platform lowering procedure.

Be careful not to lower platform onto personnel, obstructions, or hazards under the elevated platform.

- 4 After platform has been lowered, be sure cable handle is returned to normal position.

GENERAL SAFETY CAUTIONS:

This section is designed to provide safety practices to be followed when using this work platform. All personnel assigned to work on or around the work platform **MUST** be thoroughly familiar with this and all other portions of the manual which relate to safe operation of the unit. Review this section often - it involves the safety of you and your fellow workers.

DRIVING THE UNIT:

- 1 Enter work platform and fasten entry gates or chains.
- 2 Secure tools and equipment that are in the platform to prevent possible shifting and injury to personnel in the platform or on the ground.
- 3 Keep in mind overall height and overhang. Always make sure there is sufficient clearance before entering or moving under any overhead obstructions.
- 4 Keep both feet firmly positioned on platform floor.
- 5 Always look in the direction of travel.
- 6 Be aware of conditions around unit; Personnel, other equipment, tools, etc.
- 7 Drive unit slowly, unless conditions allow higher speeds.

GENERAL OPERATING CAUTIONS:

- 1 **DO NOT** position WILDCAT SL-20 at job site in such a manner as to jeopardize its stability.

⚠WARNING

The WILDCAT SL-20 series scissorlift is to be elevated **ONLY** on firm, flat, level surfaces.

- 2 **USE EXTREME CAUTION** when operating in the vicinity of electrical wires. The entire work platform is **NON-INSULATED**.

⚠DANGER

SERIOUS INJURY or DEATH of platform operator or ground personnel can result from unit contacting live wires. Avoid contact with any object where a dangerous electrical potential may exist. (See page 1 for more explanation of electrical hazards).

OPERATING PROCEDURES

GENERAL SAFETY CAUTIONS (Continued):

- 3 If any equipment trouble is experienced during operation, **SHUT DOWN** until trouble is located and corrected. **DO NOT** operate unit with a known defect.
- 4 **DO NOT** use unit for any other purpose than to position personnel and their tools and equipment.
- 5 The unit is not designed for and must not be used as a crane.
- 6 Keep platform floor clear of unnecessary tools and equipment.
- 7 **DO NOT** exceed platform rated work load.
- 8 **DO NOT** carry loads from any point outside of the platform floor.
- 9 **DO NOT** operate WILDCAT SL-20 in windy or gusty conditions.
- 10 **DO NOT** attach wires, cables or other such items to platform.
- 11 **DO NOT** use auxiliary scaffolding, ladders, or other such means to extend normal reach of the platform.
- 12 **DO NOT** allow unauthorized or unqualified persons to operate the work platform.
- 13 Personnel **MUST** be inside the platform while working aloft.
- 14 If personnel are required in the area under the raised platform, Caution **MUST** be observed regarding possibility of falling tools or other objects.
- 15 Always stop controls in neutral "OFF" position before operating in opposite direction.
- 16 **DO NOT** modify unit in any way or attempt to "override" the safety features of the unit.
- 17 **DO NOT** open swing-out hydraulic component or battery trays when platform is elevated above 8 feet.

GENERAL ELECTRICAL SYSTEM CAUTIONS:

- 1 **DO NOT** recharge batteries unless Electrolyte level has been checked. Operate charger in accordance with the battery charging instructions outlined in the maintenance section of this manual.
- 2 **DO NOT** smoke or introduce a flame or spark in the charging area.

⚠ DANGER

Lead acid batteries generate highly explosive Hydrogen gas, especially during charging cycle. To avoid the possibility of an explosion, charge batteries only in a well ventilated area away from sparks or flame.

- 3 Use protective face and eye equipment when checking the condition of charging batteries.
- 4 Place BATTERY DISCONNECT switch in the "OFF" position before charging batteries.

GENERAL OPERATOR SAFETY CAUTIONS:

A good safety practice is to have a Ground Safety Operator or other qualified operating personnel in the immediate area of the work platform to provide assistance as needed to:

- 1 Warn platform operator of any obstructions or hazards that may not be obvious to the platform operator.
- 2 Watch for platform entering into a dangerous condition where stability can be jeopardized; Soft terrain, sloping surface, impending drop-off, etc.
- 3 Watch for loss of control by platform operator.

Any of these conditions **MUST** be called to the attention of the platform operator and may be sufficient reason to "de-activate" platform control and assume control from Ground Control Station.

**YOUR SAFETY IS YOUR
RESPONSIBILITY - THINK SAFETY**

TRANSPORTING WORK PLATFORM

Before loading, unloading, or hauling the WILDCAT SL-20 on transport truck or trailer, the following information **MUST** be completely understood.

- 1 The WILDCAT SL-20 weighs approximately 3,600 pounds. Loading ramps and carrier vehicles must have adequate capacity.
- 2 A forklift may be used to load machine onto transport vehicle. The WILDCAT SL-20 scissorlift can be lifted from the rear using provided forklift pockets or from either side at designated points.
- 3 Winching is recommended for loading and unloading the WILDCAT SL-20 scissorlift.
- 4 A winch **MUST** be used to load and unload on ramps that exceed 20% grade (2 feet vertical rise in 10 feet horizontal length) or when poor traction, uneven surfaces, or stepped ramp transitions make driving the machine hazardous.

WINCHING PROCEDURE:

- 1 Locate transport vehicle so that WILDCAT SL-20 will not roll forward after being loaded.
- 2 Fully lower platform and retract extension deck.
- 3 Be sure the machine is centered with the loading ramps and carrier vehicle bed, and that the steering wheels are straight.
- 4 Attach the winch at the tie down lugs on the front (steer) end of chassis.
- 5 Disengage parking brakes and open free-wheeling valve to prevent damage to hydraulic drive motors.
(Refer to procedures outlined on page 7 of this manual).
- 6 Winch machine onto transport vehicle.
- 7 Close free-wheeling valve and reset parking brakes.

DRIVING PROCEDURE:

If a winch is not available and the ramp incline is within the 20% grade capability of the machine, observe these precautions for driving unit up or down a loading ramp, providing surface conditions are within guidelines below.

- 1 Fully lower platform and retract extension deck.
- 2 Enter work platform, remove any unnecessary tools, materials or other loose objects from the platform.
- 3 Place SPEED switch in speed 3 for climbing a ramp or speed 1 for descending a ramp.
- 4 Operate controls to drive the unit on to or off of the transport vehicle. Drive unit **STRAIGHT** through the grade transitions with minimal turning.

⚠ WARNING

DO NOT drive the WILDCAT SL-20 on any steep ramp with poor traction, uneven surfaces, steps, turns, or incline angle steeper than 20% grade (2 feet vertical rise in 10 feet horizontal length).

SECURING FOR TRANSPORT:

After the WILDCAT SL-20 scissorlift has been loaded on transport vehicle, secure the machine to the carrier vehicle as follows:

- 1 Chock wheels. **DO NOT** rely on machines parking brakes.
- 2 Place BATTERY DISCONNECT switch to the "OFF" position.
- 3 Clear the work platform of men and materials.
- 4 Secure the WILDCAT SL-20 series scissorlift to the carrier vehicle. Use chassis tie down lugs for attachment points.

MAINTENANCE

Snorkel-Economy has established a Preventive Maintenance Schedule that includes Daily Maintenance (Operator's Inspection), 30 Day or 50 Hour (frequent) Maintenance and Yearly or 500 Hour (annual) Maintenance, to detect any defective, damaged or improperly secured parts and provide information regarding lubrication and other minor maintenance items.

The Maintenance Schedule on the following page, outlines the requirements of these maintenance checks for each time interval. The operator's Daily Maintenance and inspections **MUST** be performed by a trained operator. All other maintenance and inspections **MUST** be performed by a trained service technician **ONLY**.

Note that the 30 day or 50 hour (frequent) and yearly or 500 hour (annual) Maintenance, require use of the Preventive Inspection Maintenance Checklist form from this manual to pinpoint all inspection items.

Retain a copy of these forms for your records.

They also require the use of the Placards and Decals Inspection Chart from this manual to locate all WARNING and CAUTION placards and decals on the unit.

All placards and decals **MUST** be in place and legible. Retain a copy of the inspection chart for your records.

Snorkel-Economy recommends that you make additional copies of both the Preventive Inspection Maintenance Checklist forms and the Placards and Decals Inspection Chart for your use in performing these inspections.

WARNING

Failure to perform the Preventive Maintenance at the intervals outlined in the Maintenance Schedule may result in a unit being operated with a defect that could result in **INJURY** or **DEATH** of the unit operator.

DO NOT allow a unit to be operated that has been found to be defective.

Repair all defects before returning the unit to service.

DAILY MAINTENANCE (Operator's Inspection)

COMPONENTS	SERVICE REQUIRED	RECOMMENDED LUBRICANT OR FURTHER INSTRUCTIONS
Personal Protective Devices	Visually Inspect (Condition)	
Placards, Warnings, Control Markings	Visually Inspect (Condition)	
Operation and Maintenance Manual	Visually Inspect (On Machine in Document Holder)	
Pothole Protection/Safety Devices	Visually Inspect (Installation, Condition, Operation)	
Parking Brakes	Check Operation	
Bolts and Fasteners	Visually Inspect (Looseness)	
Structural Damage & Welds	Visually Inspect (Weld Cracks, Dents)	
Entry Chains or Gate	Visually Inspect (Operation)	
Guides, Rollers and Slides	Visually Inspect (Condition)	
Tires and Wheels	Visually Inspect (Condition)	
Battery Fluid Level	Check Fluid Level	
Battery Terminals	Visually Inspect (Corrosion)	
Operating and Emergency Controls	Visually Inspect (Operation)	
Wiring Harnesses	Visually Inspect (Installation, Condition)	
Hydraulic Leaks	Visually Inspect (Hoses, Tubes)	
Hydraulic Oil	Check Fluid Level	

MAINTENANCE**30 DAY OR 50 HOUR MAINTENANCE (Qualified Service Technician)**

COMPONENTS	SERVICE REQUIRED	RECOMMENDED LUBRICANT OR FURTHER INSTRUCTIONS
Daily Maintenance	Perform Maintenance as Per Schedule	
Preventive Inspection Maintenance Checklist (Pages 20 and 21)	Perform Inspection, Complete Form	Retain Copy of Checklist
Placards & Decals Inspection Chart (Pages 22 and 23)	Perform Inspection, Complete Form	Retain Copy of Checklist
Door Hinges & Latches	Lubricate	SAE 10W Oil or Spray Lube
Batteries	Check Specific Gravity	1.260/1.275 at 80° F.
Electrical Connectors & Plugs	Check Tightness	
Emergency Lowering Cable	Check Operation	
Platform Lift Capacity	Check if Platform can Lift Maximum Load	
Platform Lift/Lower Speeds	Check Smooth Operation & Speeds	
Safety Bar	Check Operation	
Snap Rings, Steering Yoke	Visually Inspect (Operation, Tightness)	Replace if Damaged
Level Sensor Interlock	Check Operation, Test per Page 17	
Pothole Protection Interlock	Check Operation, Test per Page 17	

YEARLY OR 500 HOUR MAINTENANCE (Qualified Service Technician)

COMPONENTS	SERVICE REQUIRED	RECOMMENDED LUBRICANT OR FURTHER INSTRUCTIONS
30 Day or 50 Hours Maintenance	Perform Maintenance as Per Schedule	
Hydraulic Oil Reservoir	Clean and Replace Fluid	Mobil DTE-11 or DTE-13
Hydraulic Return Filter	Replace	After 1st. 50 Hours, Thereafter at Recommended Interval
Hydraulic Pressures	Check Pressures	
Platform Controller	Check Operation	
Base Controls	Check Operation	
Wheel Bearings	Clean and Repack	Conoco Super Sta (or equivalent)

POTHOLE PROTECTION INTERLOCK TEST:

- 1 Find a smooth, flat, level concrete slab to park on in order to avoid Level Sensor Interlock Action.
- 2 Remove all persons and materials from platform.
- 3 With platform fully lowered and swing-out trays closed, check ground clearance under Pothole Protector skids. Clearance should be over 3 inches on both sides of machine.
- 4 Using BASE CONTROLS, raise the platform while watching movement of Pothole Protector skids. Skids should lower to less than 1 inch ground clearance, lift slightly as the linkage goes "over center" and then stop in "locked" position before platform floor height reaches 6 feet.
- 5 Using BASE CONTROLS, fully lower the platform while watching movement of the Pothole Protector skids. Skids should lower slightly as the linkage goes back "over center" and then raise to their original position at over 3 inches ground clearance.
- 6 Place a 1 1/2 inch thick board (such as standard 2 x 4 lumber) under the right side Pothole Protector skid to prevent it from lowering fully.
- 7 Using BASE CONTROLS, raise the platform while watching the Pothole Protector. When the board prevents the Pothole Protector skid from fully lowering to overcenter "locked" position, the Pothole Protection Interlock system should shut off raising motion and sound an alarm at less than 6 feet platform floor height. The alarm should then sound whenever the "UP" switch is activated and the platform should not lift any further.
- 8 Lower the Platform and move the board to prevent the left side Pothole Protector skid from lowering fully.
- 9 Using BASE CONTROLS, raise the platform while watching the Pothole Protector. When the board prevents the Pothole Protector skid from fully lowering to overcenter "locked" position, the Pothole Protection Interlock system should shut off raising motion and sound an alarm at less than 6 feet platform floor height. The alarm should then sound whenever the "UP" switch is activated and the platform should not lift any further.

⚠ DANGER

If system **DOES NOT** operate properly, the machine **MUST** be repaired or adjusted by a trained service technician before it can be used to elevate workers.

LEVEL SENSOR INTERLOCK TEST (2° LEVEL SENSOR):

- 1 First, test Pothole Protection Interlock to verify proper operation.
 - 2 Remove any materials and persons from platform.
 - 3 Find a level concrete slab to use as a test surface. Verify with a carpenter's bubble level that the four locations where the machine's tires will rest are in a level plane within 1/4 inch between front and rear axles, and within 1/8 inch between left and right wheels on each axle.
 - 4 Place a 1 1/2 inch thick board (such as standard 2 x 4 lumber) under the right front tire to tilt the machine slightly down to the left.
 - 5 Using BASE CONTROLS, raise the platform no more than 8 feet platform floor height.
- The Level Sensor Interlock system should shut off raising motion and sound an alarm at less than 6 feet platform floor height. The alarm should then sound whenever the "UP" switch is activated, and the platform should not lift any further.
- 6 Lower the platform and move the board to the left front tire.
 - 7 Using BASE CONTROLS, raise the platform no more than 8 feet platform floor height.

The Level Sensor Interlock system should shut off raising motion and sound an alarm at less than 6 feet platform floor height. The alarm should then sound whenever the "UP" switch is activated, and the platform should not lift any further.

⚠ DANGER

If system **DOES NOT** operate properly, the machine **MUST** be repaired or adjusted by a trained service technician before it can be used to elevate workers.

LEVEL SENSOR INTERLOCK TEST (2° SIDE TO SIDE, 4° FRONT TO REAR SENSOR):

- 1 First, test Pothole Protection Interlock to verify proper operation.
- 2 Lower platform to stowed position.
- 3 Remove all materials and persons from platform.
- 4 Find a level concrete slab to use as a test surface. Verify with a carpenter's bubble level that the four locations where the machine's tires will rest are in a level plane within 1/4 inch between front and rear axles, and within 1/8 inch between left and right wheels on each axle.

LEVEL SENSOR INTERLOCK TEST (Continued):

- 5 Elevate front tires of machine (6) inches.
- 6 Using BASE CONTROLS, raise the platform no more than 9 feet platform floor height. The Level Sensor Interlock system should shut off raising motion and sound an alarm at less than 7 feet platform floor height. The alarm should then sound whenever the "UP" switch is activated, and the platform should not lift any further.
- 7 Repeat steps 5 and 6 above elevating rear tires.
- 8 Elevate tires on right side of machine 3/4 inch.
- 9 Using BASE CONTROLS, raise the platform to 9 feet platform height. The Level Sensor Interlock system should allow platform to be raised to 9 foot elevation. The system should **NOT** cut out platform raise function and should **NOT** sound an alarm.
- 10 Elevate tires on right side of machine 1 3/4 inch.
- 11 Using BASE CONTROLS, raise the platform no more than 9 feet platform floor height. The Level Sensor Interlock system should shut off raising motion and sound an alarm at less than 7 feet platform floor height. The alarm should then sound whenever the "UP" switch is activated, and the platform should not lift any further.
- 12 Repeat steps 8 through 11 above elevating tires on left side of machine.

⚠ DANGER

If system **DOES NOT** operate properly, the machine **MUST** be repaired or adjusted by a trained service technician before it can be used to elevate workers.

LUBRICATION:

lubricants as recommended by Snorkel, should be used in maintaining your unit. If in doubt regarding the use of lubricants other than those listed, contact Snorkel Customer Service Department, Elwood Kansas, for evaluation and recommendation. Service all components as indicated in the Maintenance Schedule. Wipe away all excess lubricant from exposed surfaces. Over lubrication can collect dirt and foreign matter which acts as an abrasive. Lubrication of accessory equipment should be in accordance with the equipment manufacturer's recommendations.

GENERAL MAINTENANCE TIPS:

Any time the work platform is elevated to perform maintenance work, properly position the safety bar as outlined on the safety bar decal.

⚠ DANGER

DO NOT reach through scissors mechanism unless the safety bar is properly positioned.

INJURY or **DEATH** could occur if the platform is not supported by the safety bar and should suddenly drop onto personnel performing maintenance work under the raised work platform.

HYDRAULIC OIL RESERVOIR:

The fluid level should be kept at level indicated by the placard on the hydraulic oil reservoir and should be checked with all cylinders fully retracted and the platform in stowed position. The reservoir filler/breather cap should be removed and the cap breather cleaned yearly with Kerosene, Fuel Oil, or other solvent. The tank suction strainer should also be removed yearly and cleaned of debris. Any time the hydraulic oil is changed or added, it is absolutely necessary that only clean hydraulic oil is used.

⚠ CAUTION

If it becomes necessary to add or use oil other than the recommended fluid, it is important that it be compatible and equivalent to the factory fill. Local oil suppliers can generally furnish this information. If questions still remain, contact Snorkel Customer Service Department, Elwood Kansas, for further information.

RETURN FILTER:

On WILDCAT SL-20 scissorlifts, the hydraulic oil return filter is located in the right hand side (hydraulic components) swing-out tray assembly near tray pivot point.

The filter element is a throw-away type filter and should be changed after the initial break-in period (approximately 50 hours operation time).

When changing the filter element, the oil inside of the filter element, should be examined for deposits of metal cuttings, which if present, could indicate excessive wear in some of the system components.

DOOR HINGES AND LATCHES:

Door hinges and latches may be lubricated as required with spray lubrication or SAE 10W oil. After lubricating, remove any excess oil or over spray so it will not collect dirt and debris.

WHEEL BEARINGS:

Wheel bearings should be cleaned and repacked yearly, (or every 500 hours of operation), using specific lubricants as specified in the maintenance schedule.

BATTERIES:

WILDCAT SL-20 series scissorlifts are electro-hydraulic operated machines, therefore particular attention should be paid to the batteries and on-board charger to assure proper machine operation.

Batteries will have longer life if the electrolyte level is maintained and they are kept charged. The unit will have better operating characteristics with fully charged batteries.

In cold weather the batteries should be maintained at full charge to keep from freezing. An extremely low or dead battery can freeze in cold weather. Make sure connections are clean and tight. Make sure charging equipment is operating properly.

The specific gravity of all battery cells should be checked per the time interval on the maintenance schedule.

Note: To obtain proper specific gravity readings of batteries, they **MUST** be checked **ONLY** after they have been fully charged. Using a calibrated hydrometer, check specific gravity for readings of 1.260/1.275 at 80° F.

If reading from any cell should vary more than 50 gravity points (0.050), this indicates a bad cell and that battery should be replaced.

⚠ WARNING

Lead-acid batteries contain sulfuric acid which will damage eyes or skin on contact. When working around batteries always wear a face shield to avoid acid in eyes. If acid contacts eyes, flush immediately with clear water and get medical attention. Wear rubber gloves and protective clothing to keep acid off skin. If acid contacts skin, wash off immediately with clear water.

⚠ DANGER

Lead-acid batteries produce flammable and explosive gases. Never allow smoking, flames or sparks around batteries.

BATTERY CHARGER:

WILDCAT SL-20 scissorlifts are equipped with an on-board automatic battery charger. This charger has an electronic circuit that will completely recharge the batteries and automatically turn off after the charge cycle is complete.

The charging cycle may last from 1 1/2 to 16 hours depending on the state of charge of the batteries. If the charging cycle should exceed this time without the batteries having been fully recharged, the charger should be shut off and the batteries should be checked.

If the batteries show no signs of problems and the specific gravity readings are within the range indicated above, then the charger should be checked.

CORRECTIVE ACTION REQUIRED

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There is no handwriting or other markings on the paper.

All items have been properly checked and tested and found to be operating satisfactorily or necessary corrective action has been completed.

DATE: _____

LIMITED WARRANTY

Snorkel-Economy, a Figgie International Company warrants each new machine manufactured and sold by it to be free from defects in material and workmanship for a period of one (1) year from date of delivery to a Customer or for one year after the machine has been placed in first service in a Dealer rental fleet, whichever comes first. Any part or parts which, upon examination by the Snorkel-Economy Service Department, are found to be defective, will be replaced or repaired, at the sole discretion of Snorkel-Economy, through its local Authorized Dealer at no charge.

Snorkel-Economy further warrants the structural components; specifically, the mainframe chassis, turntable, booms and scissor arms, of each new machine manufactured by it to be free from defects in material and workmanship for an additional period of four (4) years. Any such part or parts which, upon examination by the Snorkel-Economy Service Department, are found to be defective will be replaced or repaired by Snorkel-Economy through its local Authorized Dealer at no charge; however, any labor charges incurred as a result of such replacement or repair will be the responsibility of the Customer or Dealer.

The Snorkel-Economy Service Department must be notified within forty-eight (48) hours of any possible warranty situation during the applicable warranty period. Personnel performing warranty repair or replacement must obtain specific approval by Snorkel-Economy Service Department prior to performing any warranty repair or replacement.

Customer and Dealer shall not be entitled to the benefits of this warranty and Snorkel-Economy shall have no obligations hereunder unless the "Pre-Delivery and Inspection Report" has been properly completed and returned to the Snorkel-Economy Service Department within ten (10) days after delivery of the Snorkel-Economy product to Customer or Dealer's rental fleet. Snorkel-Economy must be notified, in writing, within ten (10) days, of any machine sold to a Customer from a Dealer's rental fleet during the warranty period.

At the direction of the Snorkel-Economy Service Department, any component part(s) of Snorkel-Economy products to be replaced or repaired under this warranty program must be returned freight prepaid to the Snorkel-Economy Service Department for inspection. All warranty replacement parts will be shipped freight collect from the Snorkel-Economy Service Department or from Snorkel-Economy's Vendor to Dealer or Customer.

REPLACEMENT PARTS WARRANTY

Any replacement or service part made or sold by Snorkel-Economy is not subject to the preceding **Limited Warranty** beyond the normal warranty period of the machine upon which the part was installed.

THIS WARRANTY EXCLUDES AND SNORKEL-ECONOMY DOES NOT WARRANT:

1. Engines, motors, tires and batteries which are manufactured by suppliers to Snorkel-Economy, who furnish their own warranty. Snorkel-Economy will, however, to the extent permitted, pass through any such warranty protection to the Customer or Dealer.
2. Any Snorkel-Economy product which has been modified or altered outside Snorkel-Economy's factory without Snorkel-Economy's written approval, if such modification or alteration, in the sole judgment of Snorkel-Economy's Engineering and/or Service Departments, adversely affects the stability, reliability or service life of the Snorkel-Economy product or any component thereof.
3. Any Snorkel-Economy product which has been subject to misuse, improper maintenance or accident. "Misuse" includes but is not limited to operation beyond the factory-rated load capacity and speeds. "Improper maintenance" includes but is not limited to failure to follow the recommendations contained in the Snorkel-Economy Operation, Maintenance, Repair Parts Manuals. Snorkel-Economy is not responsible for normal maintenance, service adjustments and replacements, including but not limited to hydraulic fluid, filters and lubrication.
4. Normal wear of any Snorkel-Economy component part(s). Normal wear of component parts may vary with the type application or type of environment in which the machine may be used; such as, but not limited to sandblasting applications.
5. Any Snorkel-Economy product that has come in direct contact with any chemical or abrasive material.
6. Incidental or consequential expenses, losses, or damages related to any part or equipment failure, including but not limited to freight cost to transport the machine to a repair facility, downtime of the machine, lost time for workers, lost orders, lost rental revenue, lost profits or increased cost.

This warranty is expressly in lieu of all other warranties, representations or liabilities of Snorkel-Economy, either expressed or implied, unless otherwise amended in writing by Snorkel-Economy's President, Vice President-Engineering, Vice President-Sales or Vice President-Marketing.

SNORKEL-ECONOMY MAKES NO WARRANTIES WHICH EXTEND BEYOND THE DESCRIPTION OF THIS LIMITED WARRANTY. SNORKEL-ECONOMY MAKES NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND DISCLAIMS ALL LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO INJURY TO PERSONS OR PROPERTY.

The Customer shall make all warranty claims through its local Authorized Dealer and should contact the Dealer from whom the Snorkel-Economy product was purchased for warranty service. Or, if unable to contact the Dealer, contact the Snorkel-Economy Service Department for further assistance.

Effective January 1992

Placards And Decals Location Drawing

