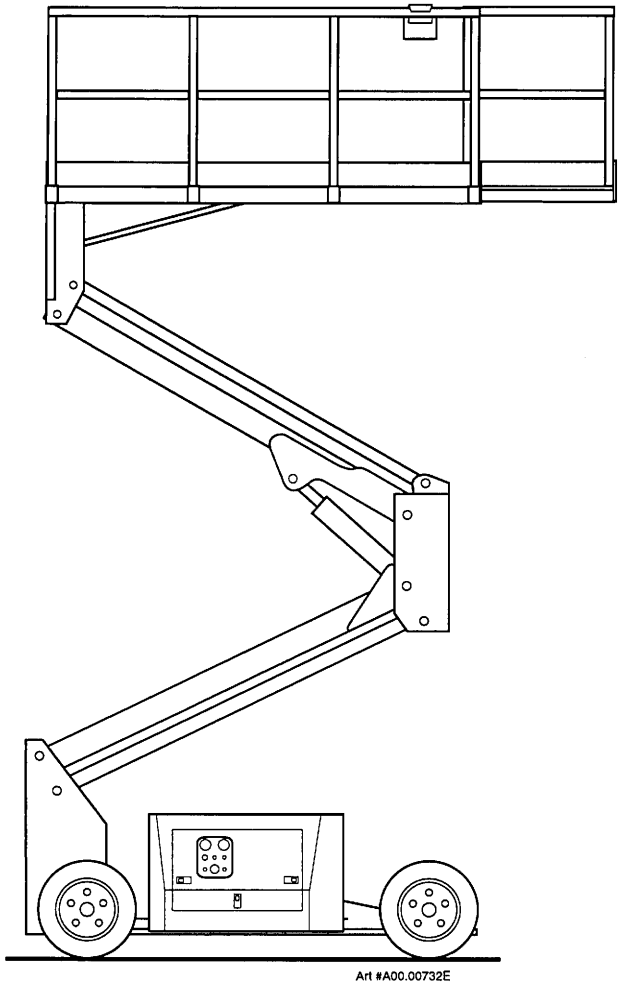
FALCON
2570 RT
VERTICAL LIFT

SERVICE MANUAL



Art #A00.00732E

Part No. 89-757017 • Revision "0.1" dated July 1996 •

Table of Contents

Introduction iv
Machine Specifications vi
Primary Machine Components vii
Chassis Components viii
Undercarriage Components ix
Boom Components x
Platform Components xi
Lubrication Chart xii
Lubrication Diagram xiii

Section 1: Transportation and Emergency Procedures

Transporting the Unit 1-3
Moving of the Falcon Lift 1-3
Fork Lifting of the Falcon Lift 1-4
Truck Transport of the Falcon Lift 1-4
Unloading Procedures 1-5
Emergency System and Procedures 1-6
Emergency Lowering 1-6
Emergency Procedures 1-6

Section 2: Hydraulic System

Hydraulic Fluid 2-3
Handling Precautions 2-3
Fluid Recommendations 2-3
Hydraulic Fluid Analysis 2-3
System Flushing Procedure 2-4
Hydraulic System Functional Description 2-5
Hydraulic System Components 2-6
Hydraulic fluid reservoir Assembly 2-6
Return Filter 2-6
Hydraulic Pump 2-6
Loop Valve 2-6
Loop Pressure Relief Valve 2-6
Unloading Valve 2-6
Unloading Pressure Relief Valve 2-6
Drive/ Steer System 2-6
Directional Drive Valve 2-7
Drive Proportional Valve 2-7
Motion Control Valve 2-7
Flow Divider Valve 2-7
Freewheel Valve 2-7
Hydraulic Drive Motor 2-7
Pressure Reducing Valve 2-7
Brake Flow Control Valve 2-7
Brake Release Pump and Valve 2-7
Steer Valve 2-7
Steer Cylinder 2-7

Table of Contents (Continued)

Section 2: Hydraulic System (Continued)

Lift System 2-8
Lift Valve 2-8
Lift holding Valve (Check Valve) 2-8
Flow Control Valve 2-8
Lift Cylinder 2-8
Velocity Fuse 2-8
Emergency (Manual) Lowering Valve 2-8

Section 3: Electrical System

Battery 3-3
Battery Maintenance (in Storage) 3-3
Battery Maintenance (in Use) 3-3
Battery Preventive Maintenance 3-4
Battery Replacement 3-4
Movement Alarm 3-4
Tilt Alarm 3-4
Tilt Alarm Test 3-4
Tilt Alarm Adjustment 3-5
Descent Alarm 3-5
Relay 3-5
Emergency Stop Button 3-5

Section 4: Mechanical Components

Undercarriage 4-3
Tires 4-3
Changing Tires 4-3
Wheels and Lug Nuts 4-4
Drive Motor 4-4
Steer Cylinder Seal Replacement 4-4
Hoses and Cables 4-5
Brake Disassembly 4-5
Brake Assembly 4-7
Boom Assembly 4-8
Lift Cylinder 4-8
Lift Cylinder Removal 4-8
Lift Cylinder Replacement 4-8
Lift Cylinder Seal Replacement 4-9
Boom Disassembly 4-10
Boom Assembly 4-11
Boom and Parallel Arm Pivot Pin and Bushing Replacement 4-12
Lift Cylinder Holding Valve Replacement 4-12

Table of Contents (Continued)

Section 5: Troubleshooting

General Troubleshooting Tips 5-3
Troubleshooting Chart 5-4

Section 6: Maintenance

General Maintenance Tips 6-3
First Three Months of Operation 6-4
Routine Servicing 6-4
Shift Service 6-5
Weekly Service 6-5
Monthly Service 6-5
Semi-Annual Service 6-6
Annual Service 6-6
Four Year Interval Service 6-7
Shift Operational Checklist 6-8
Weekly Operational Checklist 6-10
Monthly Operational Checklist 6-11
Semi-Annual Operational Checklist 6-12

Index

Appendix

INTRODUCTION

This Service Manual is designed to provide you with the instructions needed to properly maintain the SIMON AERIALS INC. Vertical Lift. When used in conjunction with the Operator's and Parts Manuals (provided separately) this Service Manual will assist you in making necessary adjustments or repairs.

Simon Aerial Scissors Lifts are designed and built to provide many years of safe, dependable service. To obtain full benefits from your Vertical Lift, always follow the proper operating and maintenance procedures. Only trained, authorized personnel should be allowed to operate or service this machine. Service personnel should read and study the Operator's, Service and Parts Manuals in order to gain a thorough understanding of the unit prior to making any repairs. Exercise all necessary safety precautions when performing maintenance not covered in this manual.

To help you recognize important safety information, we have identified warnings and instructions that directly impact on safety with the following signals:

⚠ DANGER

DANGER INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY. THIS SIGNAL WORD IS TO BE LIMITED TO THE MOST EXTREME SITUATIONS.

⚠WARNING

WARNING INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

⚠ CAUTION

Caution indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices. Caution is permitted for property-damage-only accidents.

Service personnel and machine operators must understand and comply with all warnings and instructional decals on the body of the machine, and at the ground controls and platform control console.

⚠ DANGER

MODIFICATIONS OF THIS MACHINE FROM THE ORIGINAL DESIGN ARE STRICTLY FORBIDDEN WITHOUT WRITTEN PERMISSION FROM SIMON AERIALS INC. AND WILL VOID ANY REMAINING WARRANTY.

SIMON AERIALS INC. reserves the right to change, improve, modify or expand features of its equipment. Therefore, specifications, models or equipment are subject to change without notice, and without incurring obligations.

Any procedures not found within this manual must be evaluated by the individual to assure himself that they are "proper and safe", because it is not possible to cover all potential procedures.

All SIMON AERIALS INC. manuals are periodically updated to reflect changes that occur in the equipment. Please contact the factory for information regarding changes to your machine which may not be included in the manual.

MACHINE SPECIFICATIONS

Working Height (Max.)	**31 Ft/** 9.45 M
Platform Height (Max.)	**25 Ft/** 7.62 M
Stowed Height	**94.0 In./** 2.39 M
Platform Capacity (Unrestricted):	
With Standard Deck	**1,250 LBs./** 567 kg
With Optional Deck Extension	**1,000 LBs./** 457 kg
Deck Extension Capacity	**250 Lbs./** 110 kg
Platform Dimensions:	
With Standard Deck	**63.0 In. x 126 In./** 1.60 M x 3.20 M
With Optional Deck (Retracted)	**63.0 In. x 128.5 In./** 1.60 M x 3.3 M
With Optional Deck (Extended)	**63.0 In. x 162.0 In./** 1.60 M x 4.11 M
Width	**74 In./** 1.88 M
Wheelbase	**84 In./** 2.13 M
Wheel Track	**58 In./** 1.48 M
Outside Turning Radius	**12 Ft 6 In./** 3.81 M
Inside Turning Radius	**7 Ft 7 In./** 2.31 M
Ground Clearance	**9.0 In./** 0.22 M
Gross Vehicle Weight (Approx.)	**6,000 LBs./** 2,722 kg
Travel Speed - Platform Stowed	**2.5 MPH/** 4.0 KPH
Travel Speed - Platform Elevated	**0.5 MPH/** 0.8 KPH
Gradeability (on hard surface) (ref. page vi)	**20° (36%)**
Tires	**29 x 12.5 x 15 STG**
Tire Pressure	**30 PSI/** 2.07 Bar
Hydraulic Fluid Capacity	**12 GAL./** 45 Liters
Fuel Capacity	**13 GAL./** 49 Liters
Hydraulic Operating Pressure	
Steer, Lift and Drive Circuits	**2850 PSI/** 196 Bar
Wheel Lug Nut Torque	**65-70 Ft LBs./** 88-95 Nm
Power System (Electrical)	12 VOLT DC

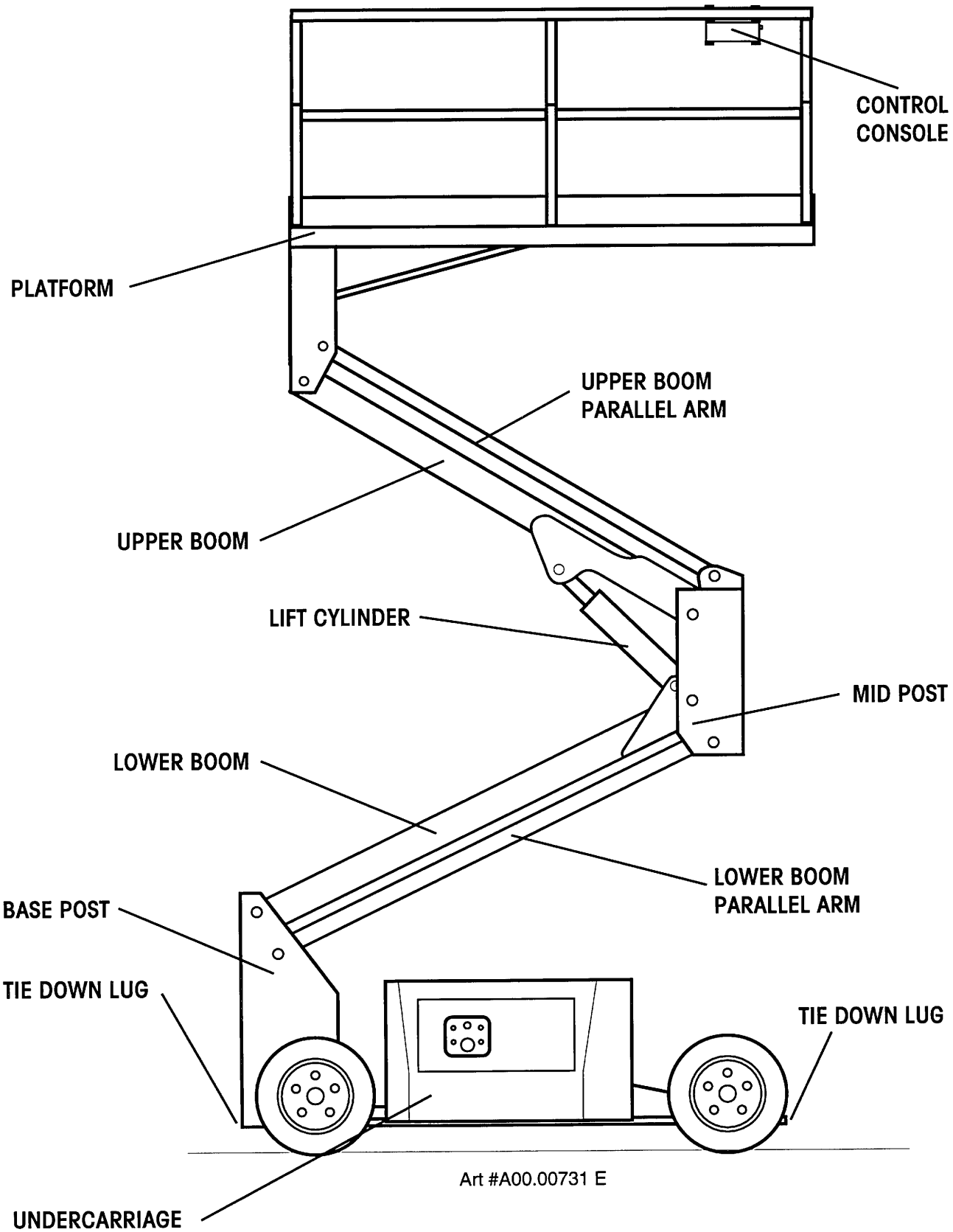
Engine Standard:

Onan P224, Air Cooled Gas, 24 HP (17.9 KW) at 3500 RPM

Engine Options:

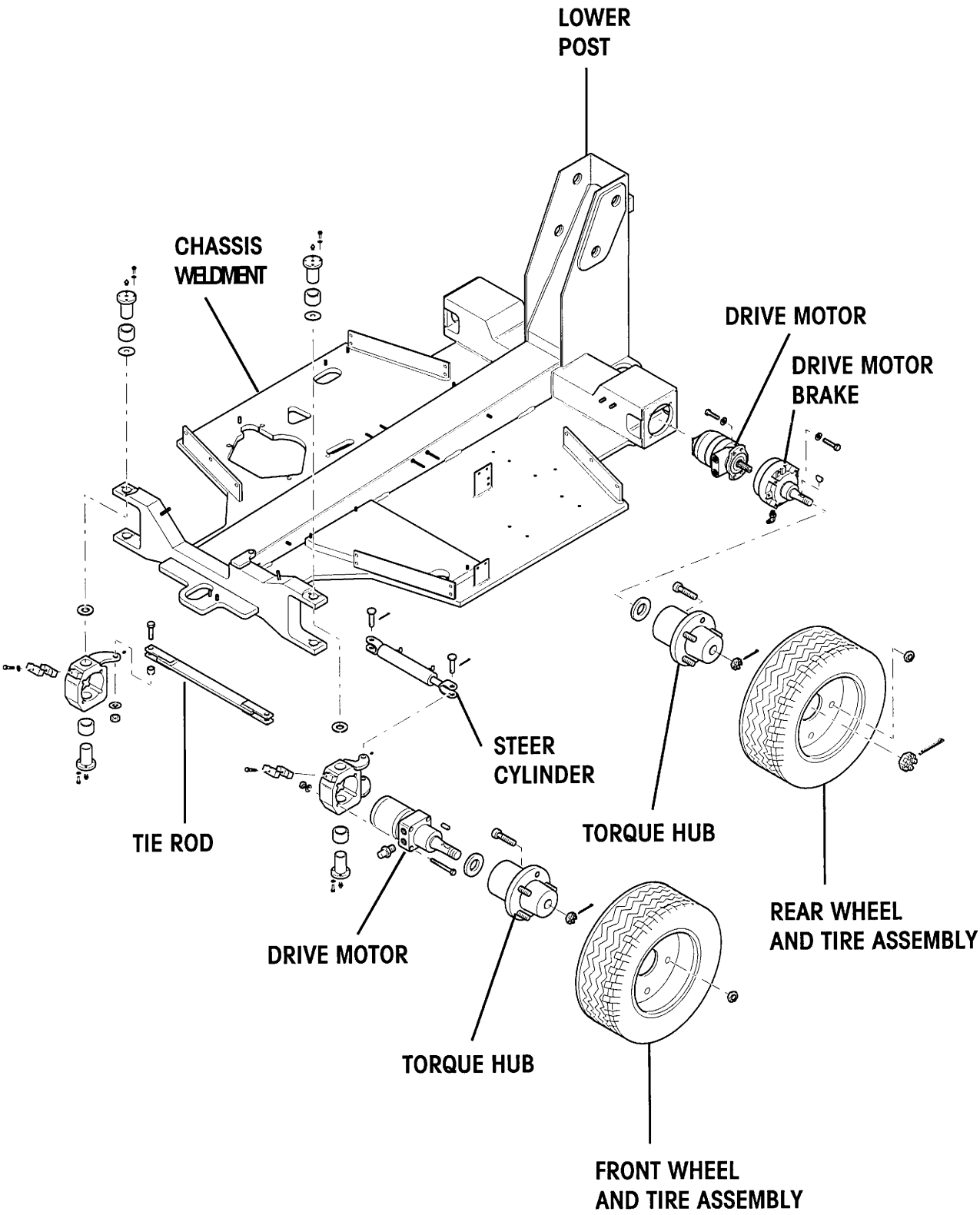
Onan P224, Air Cooled Dual Fuel, 24 HP (17.9 KW) at 3500 RPM
Kubota D722, Liquid Cooled Diesel, 24 HP (17.9 KW) at 3200 RPM
Kubota WG750, Liquid Cooled Gas, 24 HP (17.9 KW) at 3500 RPM
Kubota WG750, Liquid Cooled Dual Fuel, 24 HP (17.9 KW) at 3500 RPM

PRIMARY MACHINE COMPONENTS

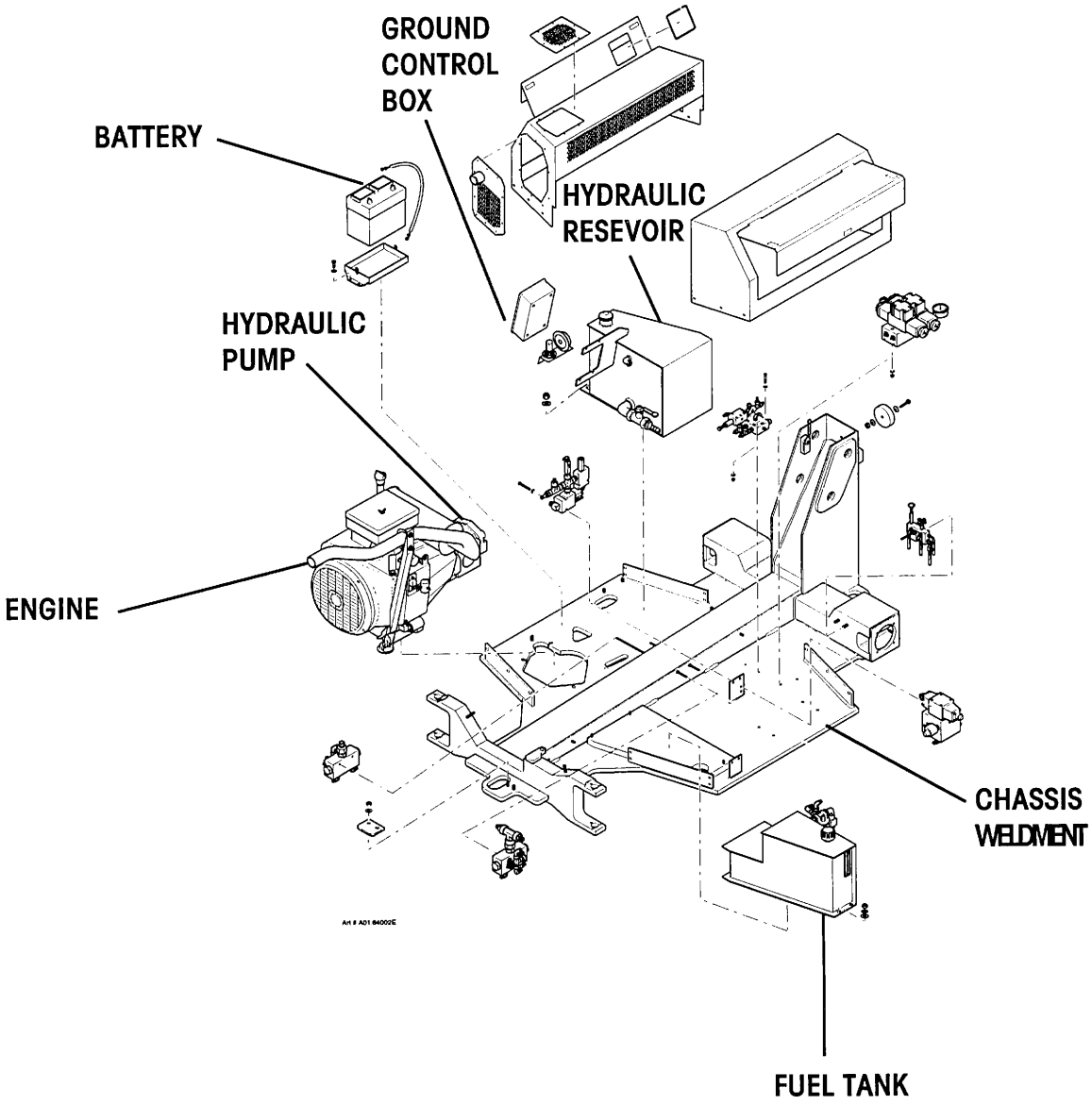


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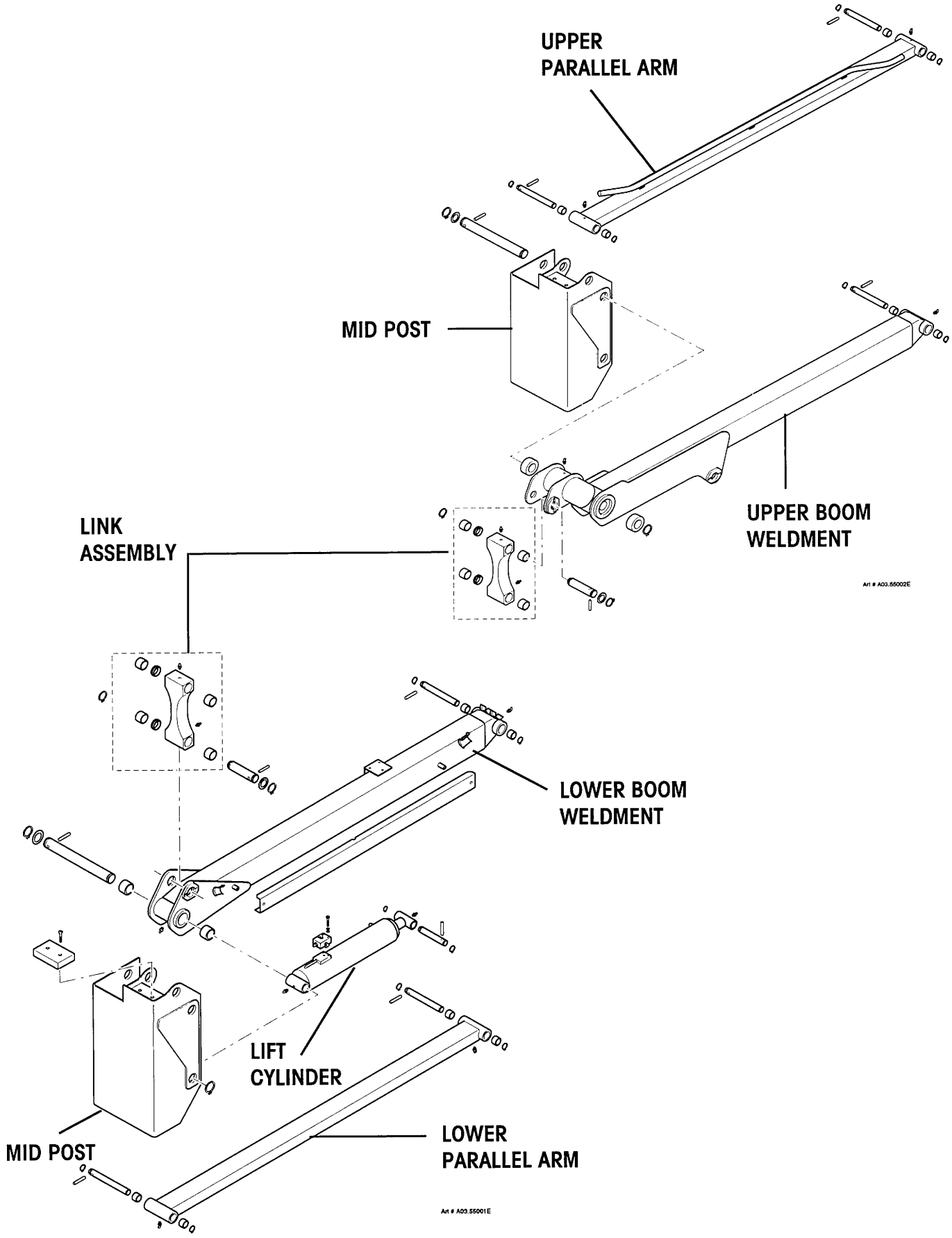
CHASSIS COMPONENTS



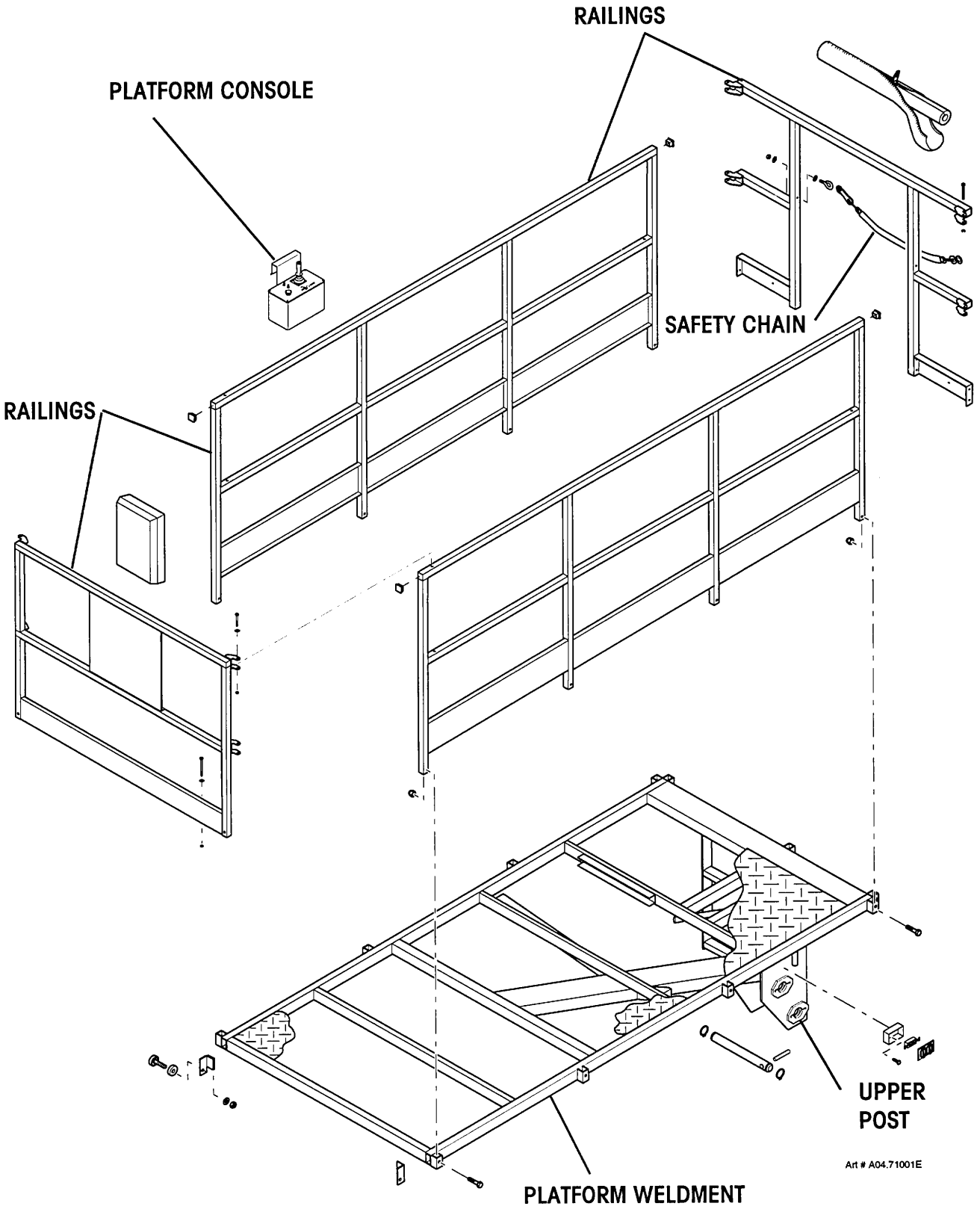
UNDERCARRIAGE COMPONENTS



BOOM COMPONENTS



PLATFORM COMPONENTS

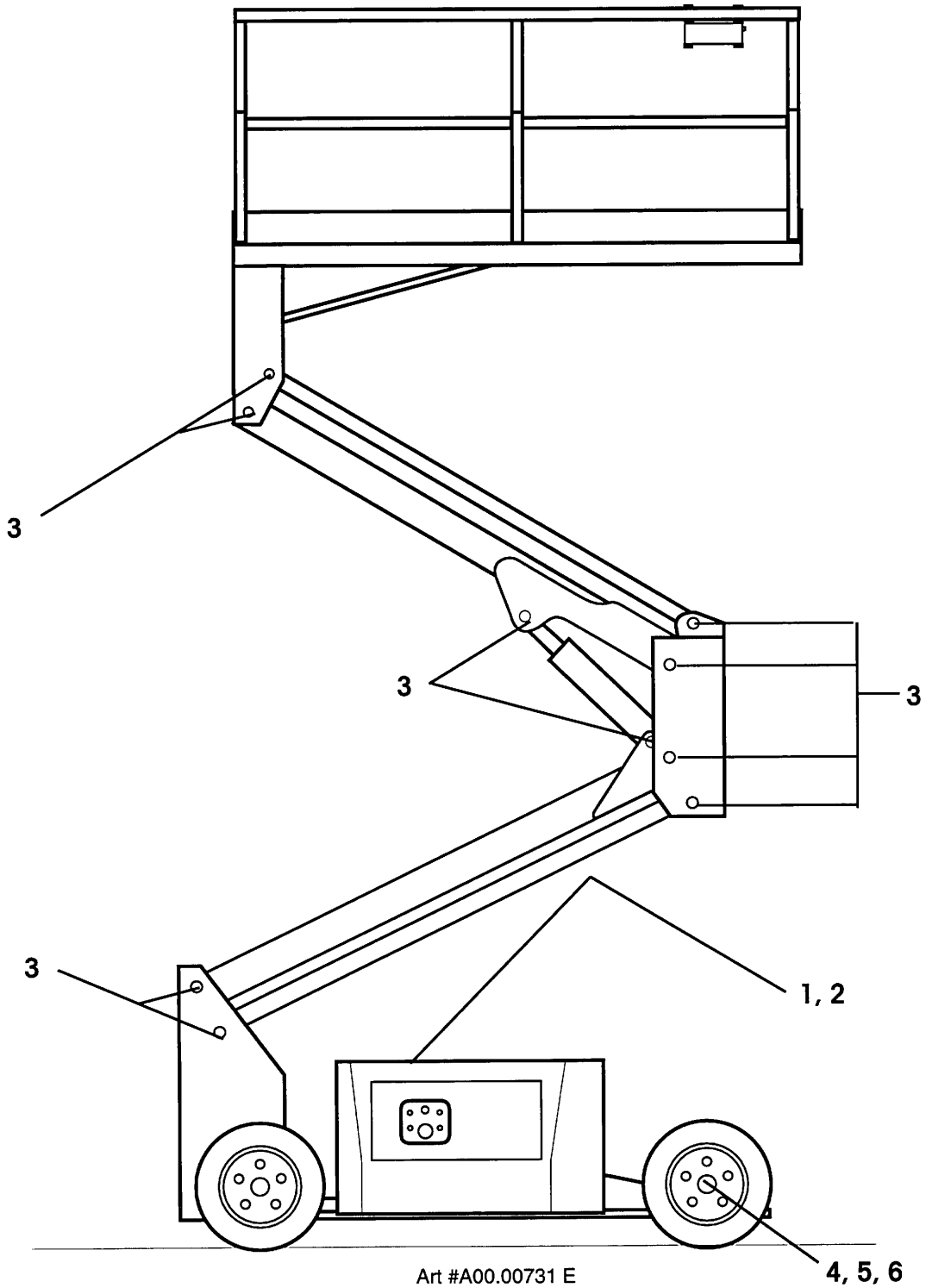


LUBRICATION CHART

NO.	ITEM	SPECIFICATION AND QUANTITY	FREQUENCY OF LUBRICATION
1.	Hydraulic reservoir	Mobil AW32 to 3" from top of tank with platform fully lowered.	Check daily. Analyze every 6 months or 500 hours.*† Change yearly or every 1,000 hours.*†
2.	Hydraulic return filter	Filter element.	Change every 6 months or 500 hours.*†
3.	Pivot pins	Mobilgrease Special or equivalent (N.L.G.I. #2 EP Lithium, plus EP & Moly) Purge old grease.	Monthly or every 100 hours.*† Lubricate at every 3 feet (1M) of vertical displacement.
4.	Steering spindles	Lithium N.L.G.I. #2 EP. Purge old grease.	Monthly or every 100 hours.*†
5.	Steering hubs	Lithium N.L.G.I. #2 EP. Clean and repack.	Change every 6 months or 500 hours.*†
6.	Steering linkage	Silicone spray.	Monthly or every 100 hours.*†

* Whichever occurs first.
† Different requirements for severe duty applications. See check lists.

LUBRICATION DIAGRAM



Art #A00.00731 E

SECTION 1: TRANSPORTATION AND EMERGENCY PROCEDURES

Table of Contents, Section 1

Transporting the Unit 1-3
Moving of the Falcon Lift 1-3
Fork Lifting of the Falcon Lift 1-4
Truck Transport of the Falcon Lift 1-4
Unloading Procedures 1-5
Emergency System and Procedures 1-6
Emergency Lowering 1-6
Emergency Procedures 1-6

TRANSPORTING THE UNIT

Platform should be in the stowed position when the unit is being transported. Do not operate the unit while it is being transported.

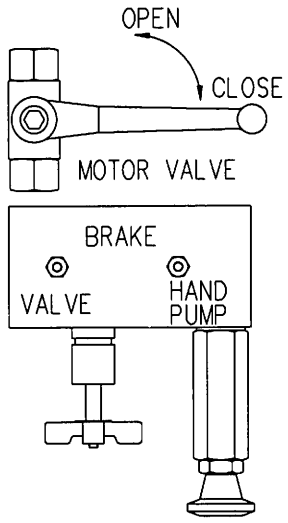
MOVING OF THE FALCON SERIES LIFT

If your FALCON is equipped with the UNPOWERED MOVEMENT OPTION, it can be winched or moved short distances in case of power failure. The brake release valve is located on the valve block with the palm button, to the left of the valve manifold, inside the hydraulic compartment. The motor free-wheel valve is the hand lever located to the left of the brake release valve.

To move the unit:

- Fully close the brake release valve by turning the valve knob until fully closed.
- Open the motor free-wheel valve by pulling the hand lever up.
- Operate the brake release hand pump (palm button) to release brake.
- The unit is now ready to move.

To return to normal operation, fully open the brake release valve by turning the valve knob counter-clockwise. Fully close the motor free-wheel valve by pushing the hand lever down.



Brake Release and Motor Valves

FORK LIFTING OF THE FALCON LIFT

- Lift the FALCON from the sides only. Position forks under the modules, between the front and rear wheels and as near to the rear (driving) wheels as possible. Ensure that lift truck used has adequate capacity to lift the machine (see Machine Specifications for gross vehicle weight).

⚠ CAUTION

Do not use tie down lugs to lift the FALCON.

TRUCK TRANSPORT OF THE FALCON LIFT

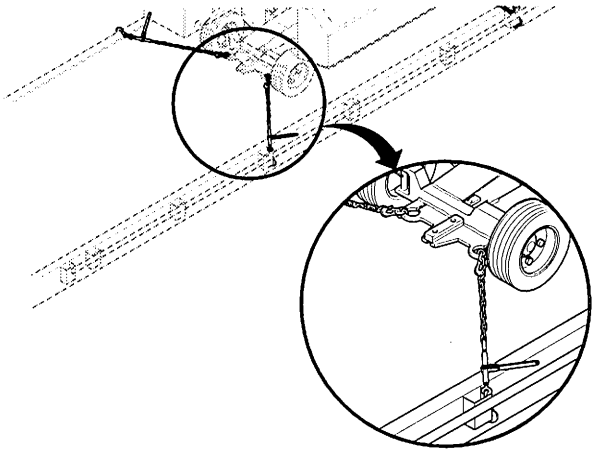
- The FALCON may be winched onto a transporting vehicle IF THE UNIT IS EQUIPPED WITH THE UNPOWERED MOVEMENT OPTION. Return both release valves to normal operating position (engaging the brake) when the unit is on the transporting vehicle.

- Securely attach the machine to the transporting vehicle using the tie down lugs, located at the center front and center rear of the undercarriage. Ensure that chains or straps have adequate load capacity, and DO NOT OVERTIGHTEN.

⚠ CAUTION

Do not use tie down lugs to lift the FALCON.

- Always chock the wheels of the unit while on the transporting vehicle.



Transportation Tie Down (Recommended)

UNLOADING PROCEDURES

- Inspect the outside of the unit for damage. Inspect all hoses, boom sections and hoses/ cables for chafing or road damage. Confirm that all wheel lug nuts are tight.
- Open both side compartments. Inspect all electrical and hydraulic connections for damage and security.
- Connect battery cables to battery if required. Check electrolyte level.
- Check that fluid level is 3" (7.62 cm) from the top of the hydraulic tank, and add fluid as required (see Lubrication Chart).
- Close side compartment covers.
- Attach the unit to a winch for the unloading.

⚠WARNING

ALWAYS ATTACH THE UNIT TO A WINCH WHEN LOADING OR UNLOADING FROM A TRUCK OR TRAILER. WE DO NOT RECOMMEND UNASSISTED LOADING OR UNLOADING OF ANY MOBILE PLATFORM.

READ AND UNDERSTAND ALL SAFETY, CONTROL AND OPERATING INFORMATION FOUND ON THE MACHINE AND IN THIS MANUAL BEFORE OPERATING THE UNIT.

- Remove all machine tie downs. Remove wheel chocks.
- Enter the platform, and start the engine using the platform controls. Select the "HIGH" speed, and test all platform functions.
- Carefully drive the unit off the truck or trailer with the winch still attached.
- Before placing the unit into service, all operators must read and understand the contents of the Operator's Manual.

EMERGENCY SYSTEM AND PROCEDURES

⚠ DANGER

IF PLATFORM SHOULD FAIL TO LOWER, DO NOT ATTEMPT TO CLIMB DOWN THE BOOM ASSEMBLY. SERIOUS INJURY MAY RESULT.

HAVE AN EXPERIENCED OPERATOR USE THE EMERGENCY LOWERING PROCEDURE TO SAFELY LOWER THE PLATFORM.

THIS MACHINE IS NOT INSULATED AND EXTREME CARE MUST BE TAKEN WHEN WORKING AROUND POWER LINES.

DO NOT TOUCH THE UNIT IF THERE IS A CHANCE IT IS IN CONTACT WITH POWER LINES. WAIT UNTIL THE POWER TO THE LINES HAS BEEN SHUT OFF.

EMERGENCY LOWERING

- Activate the emergency lowering valve by turning the red knob on the valve counterclockwise. (This valve is located to the right of the valve manifold assembly, inside the hydraulic compartment.)

  NOTE: Drive and steer functions should not be used when using the emergency lowering valve.

  IMPORTANT: The emergency lowering system is designed to be used only for emergency descent.

- Once the platform has been fully lowered, return the emergency lowering valve to operating mode by turning red valve knob clockwise.

  NOTE: Platform will not elevate if this valve is activated.

- **Report incident to supervisor immediately.**

EMERGENCY DRIVE

The emergency lowering system will not provide control or operation of the drive or steering functions. Should it be necessary to move the unit, see "Transporting the Unit", earlier in this section.

EMERGENCY PROCEDURES

It is not possible for us to foresee every emergency situation that could arise during operation of this machine. Information on the following pages describes three typical emergency situations and lists appropriate actions that can be taken.

When faced with an emergency, above all please remember:

- Stay calm.
- Think through the situation before operating the machine.
- Get help if necessary.

SITUATION: Platform elevated, operator not incapacitated, but unit will not respond to platform controls.

POSSIBLE CONDITION

- One or more functions not operating correctly.
- Unit movement from unselected control.
- Unit function will not stop unless power is switched off.

CORRECTIVE ACTION

1. Remove foot from foot switch and remove hand from the power control.
2. Push the "Emergency Stop" button.
3. Evaluate the nature of the failure, lower the platform using platforms controls if possible. If not, have an experienced operator lower the platform using the ground emergency lowering valve.

⚠ DANGER

DO NOT TRY TO CLIMB DOWN THE BOOM SECTIONS ASSEMBLY.

AN EXPERIENCED OPERATOR SHOULD USE THE EMERGENCY LOWERING VALVE AT THE REAR OF THE UNDERCARRIAGE TO SAFELY LOWER THE PLATFORM.

4. **Report the incident to your supervisor immediately.**

SITUATION: Unit elevated, with operator incapacitated at controls.

⚠ DANGER

DO NOT TOUCH UNIT !!!

DETERMINE THE CAUSE OF THE PROBLEM BEFORE YOU TOUCH THE MACHINE.

CORRECTIVE ACTION

1. Have someone summon first aid or rescue squad.
2. Attempt to talk to operator before taking any rescue measures.
3. **Check to see if operator is in a pinned position or would be endangered if platform is moved before attempting emergency lowering procedure.**
4. After establishing that the machine is not in contact with live power lines, lower platform using the emergency lowering valve located at the rear of the undercarriage.
5. Render first aid to the operator.
6. **Report the incident to your supervisor immediately.**

IMPORTANT: Any incident involving personal injury must be immediately reported to the local Simon Aerials Distributorship as well as to Simon Aerials Inc.

SITUATION: Platform in contact with live power lines and operator incapacitated.

⚠ DANGER

DO NOT TOUCH UNIT !!!

ELECTROCUTION HAZARD!!!

CORRECTIVE ACTION

1. Contact authorized personnel to disconnect power supply touching unit.
2. Have someone summon first aid or rescue squad.
3. **If operator is unconscious, check to see if he is in a pinned position, or would be endangered if platform is moved.**
4. **AFTER POWER IS CUT,** use the emergency lowering valve located at the ground control station to bring platform with operator to a safe location to render first aid.
5. **Report the incident to your supervisor immediately.**

IMPORTANT: Any incident involving personal injury must be immediately reported to the local Simon Aerials Distributorship as well as to Simon Aerials Inc.

SECTION 2:
HYDRAULIC SYSTEM

Table of Contents, Section 2:

Hydraulic Fluid 2-3
- Handling Precautions 2-3
- Fluid Recommendations 2-3
- Hydraulic Fluid Analysis 2-3
- System Flushing Procedure 2-4

Hydraulic System Functional Description 2-5
Hydraulic System Components 2-6
- Hydraulic fluid reservoir Assembly 2-6
- Return Filter 2-6
- Hydraulic Pump 2-6
- Loop Valve 2-6
- Loop Pressure Relief Valve 2-6
- Unloading Valve 2-6
- Unloading Pressure Relief Valve 2-6
- Drive/ Steer System 2-6
  - Directional Drive Valve 2-7
  - Drive Proportional Valve 2-7
  - Motion Control Valve 2-7
  - Flow Divider Valve 2-7
  - Freewheel Valve 2-7
  - Hydraulic Drive Motor 2-7
  - Pressure Reducing Valve 2-7
  - Brake Flow Control Valve 2-7
  - Brake Release Pump and Valve 2-7
  - Steer Valve 2-7
  - Steer Cylinder 2-7
- Lift System 2-8
  - Lift Valve 2-8
  - Lift holding Valve (Check Valve) 2-8
  - Flow Control Valve 2-8
  - Lift Cylinder 2-8
  - Velocity Fuse 2-8
  - Emergency (Manual) Lowering Valve 2-8

HYDRAULIC FLUID

HANDLING PRECAUTIONS

⚠WARNING

PERSONS IN REGULAR CONTACT WITH MINERAL-BASED HYDRAULIC FLUID NEED TO BE AWARE OF THE IMPORTANCE OF THOROUGH HYGIENE, AND THE PROPER METHODS FOR HANDLING MINERAL OILS IN ORDER TO AVOID POTENTIAL HAZARDS TO HEALTH.

If mineral-based hydraulic fluid is SPLASHED INTO THE EYES, it must be WASHED OUT THOROUGHLY using abundant quantities of water. If irritation persists, medical advice should be sought.

Mineral oils act as solvents on the natural oils in the skin. FREQUENT AND PROLONGED SKIN CONTACT CAN CAUSE DERMATITIS OR SEVERE IRRITATION. Mineral-based hydraulic fluids normally present no health hazard when used properly. Protective clothing and proper washing facilities should be provided or be accessible.

⚠WARNING

HYDRAULIC FLUID UNDER PRESSURE CAN PENETRATE AND BURN THE SKIN, DAMAGE EYES, AND MAY CAUSE SERIOUS INJURY, BLINDNESS, AND EVEN DEATH.

FLUID LEAKS UNDER PRESSURE MAY NOT ALWAYS BE VISIBLE.

IF MINERAL-BASED HYDRAULIC FLUID HAS PENETRATED THE SKIN, IT MUST BE MEDICALLY TREATED, WITHIN A FEW HOURS, BY A DOCTOR FAMILIAR WITH THIS TYPE OF INJURY.

FLUID RECOMMENDATIONS

We strongly recommend the use of Mobil AW32 HYDRAULIC FLUID. An EQUIVALENT substitute can be used if absolutely necessary. Mineral-based hydraulic fluids produced by different companies will USUALLY mix with each other satisfactorily, but this IS NOT RECOMMENDED. When in doubt, consult your supplier.

Mobil AW32 has proven to be suitable for use in all climates. For continued operation in temperatures below 32° F (0° C), use of Mobil AW32 FLUID is satisfactory.

For operation in tropical climates the use of Mobil AW68 is allowable.

HYDRAULIC FLUID ANALYSIS

Use the following as a guide to determine when analysis of the hydraulic fluid is necessary.

- Any time the hydraulic pump is replaced.
- If fluid discoloration is noticed in the hydraulic reservoir sight tube.
- If, after the first 50 hours of operation, the hydraulic filter element is plugged.
- Any time the hydraulic filter element shows signs of metal contamination.
- Once every six months, under normal operating conditions.
- Every 3 months, in extremely dusty or dirty operating conditions.

HYDRAULIC FLUID ANALYSIS (CONTINUED)

The hydraulic fluid analysis must be done by a qualified laboratory. To ensure that you receive accurate recommendations about the fluid being analyzed, always provide the following information with the test sample.

- Type of hydraulic fluid (see Lubrication Chart for recommended hydraulic fluid and/or your records).
- Model and serial number of unit from which sample was taken.
- Purpose of analysis: pump failure, discoloration, etc.
- Type of analysis: complete to show additive breakdown, acid buildup, viscosity, type and percent of contaminants; also, comparison to new fluid and recommendations.

Comply with contamination analysis and recommendations to achieve a clean, contamination free hydraulic system.

Following the above guidelines will prevent premature failure of pumps, cylinder seals and drive motors, and unnecessary down time.

If system flushing and replacement of fluid is recommended, refer to the flushing procedure.

SYSTEM FLUSHING PROCEDURE

1. With platform fully down, drain hydraulic fluid from hydraulic tank into a clean, empty container. Use an oil filter cart so the fluid may be reused if analysis is good.
2. When the hydraulic tank is empty, remove suction strainer and hose.
3. Remove three (3) return line hoses at back of hydraulic tank.
4. Remove the return filter and hoses.
5. Flush the hoses with clean hydraulic fluid.
6. Discard old return filter element and replace.
7. With hoses removed from the hydraulic tank, flush out the tank.
8. Reinstall all hoses removed in the previous steps.
9. If the hydraulic fluid removed from the reservoir is good, pump it through a filter cart back into the tank. If fluid is not usable, dispose of it properly. Fill hydraulic tank with filtered, fresh hydraulic fluid (refer to Lubrication Chart).
10. Loosen output hose fittings at pump to allow pump to flood with hydraulic fluid. Tighten fittings.
11. Start up the unit. Briefly operate all functions. Two or three full lift cycles may be necessary to purge all air from lift cylinders.
12. When the above procedures have been completed, fill hydraulic tank to full mark on sight gauge.
13. Check for leaks and correct as necessary. Unit is now ready to be placed back in operation.

HYDRAULIC SYSTEM FUNCTIONAL DESCRIPTION

The 2-stage hydraulic pump pulls fluid from the reservoir, and outputs it to the the various functions. When no functions are operated, fluid is circulated to the hydraulic reservoir via the loop valve and unloading valve. These valves have separate relief valves.

The drive handle at the platform controls a solenoid operated proportional flow valve that pilots open a valve should pressure exceed 2900 psi, and a directional control valve which directs fluid to the hydraulic drive motors for forward or reverse movement. A set of flow dividers allows equal hydraulic fluid flow to the four drive motors.

The motion control valve with brake shuttle valve produces pressure in the drive system using two counterbalance valves to prevent uncontrolled movement. It also directs fluid flow to the brake cylinder, releasing the spring applied brake and allowing the lift to move. When flow is cut off to the brake cylinder the brake is applied, which functions as a parking brake, arresting motion while the unit is parked.

Steering is accomplished via a directional control valve (steer valve) which directs fluid to the steer cylinder for turning left or right.

To raise the platform, the lift valve shifts providing free flow to the lift cylinders. When the platform is lowered the holding valve shifts to open and the lift valve spool permits fluid flow back to the reservoir through the velocity fuse, the flow control valve. The flow control valve orifice controls the rate of descent.

HYDRAULIC SYSTEM COMPONENTS

HYDRAULIC FLUID RESERVOIR ASSEMBLY

The hydraulic fluid reservoir consists of the tank, a filler cap with breather, two suction strainers, a drain plug, a sight gauge and a return filter with a 10 micron filter element.

Perform the following steps on a weekly basis.

- Check tank for signs of leakage.
- Inspect tank securing bolts for tightness.

RETURN FILTER

The return filter has a 10 micron spin-on filter element. The filter element must be changed every 6 months or 500 hours.

HYDRAULIC PUMP

The two stage hydraulic pump is driven by a gasoline or Diesel (optional) engine. The pump provides hydraulic fluid flow to operate the machine functions. There are no adjustments on the pump.

LOOP VALVE

The loop valve is a normally open solenoid operated poppet valve. It allows hydraulic fluid to return to hydraulic reservoir when no function is selected. When a function is selected, the spool shifts, blocking the flow to the reservoir. It requires no adjustment and a seal kit is available.

LOOP PRESSURE RELIEF VALVE

This pressure relief valve is a differential poppet relief valve used as a pressure limiting device. It is preset at the factory to 2900 PSI (200 Bar, 204 kg/ cm^2.

To adjust pressure relief valve:

1. Loosen seal nut.
2. Deadhead pressure and check reading.
3. Use a hex key to adjust pressure. Backing out hex socket screw decreases pressure.
4. Tighten seal nut.

UNLOADING VALVE

The unloading valve is a normally open solenoid operated poppet valve. It allows hydraulic fluid to return to hydraulic reservoir when no function is selected. When a function is selected, the spool shifts, blocking the flow to the reservoir. It requires no adjustment and a seal kit is available.

UNLOADING PRESSURE RELIEF VALVE

This pressure relief valve is a differential poppet relief valve used as a pressure limiting device. It is preset at the factory to 1800 PSI (124 Bar, 126 kg/ cm^2).

To adjust pressure relief valve:

1. Loosen seal nut.
2. Deadhead pressure and check reading.
3. Use a hex key to adjust pressure. Backing out hex socket screw decreases pressure.
4. Tighten seal nut.

DRIVE/ STEER SYSTEM

The drive/ steer system consists of the proportional drive valve, and the directional drive valve, the motion control valve, the flow divider, the freewheel valve, the hydraulic drive motors, and the steer valve and steer cylinder.

DIRECTIONAL DRIVE VALVE

The drive valve is a 3 position, 2-way, spring centered directional control valve. It is also a motoring spool type, closed center valve. The coils can be replaced if faulty, and there is a replacement seal kit available.

DRIVE PROPORTIONAL VALVE

The drive proportional valve is a solenoid operated electrical control proportional flow control valve. It also has a valve piloted to tank if the pressure is greater in the drive circuit than 2900 psi. The coil can be replaced if faulty, and there is a replacement seal kit available.

MOTION CONTROL VALVE

The motion control valve consists of a dual piloted open, spring closed set of two dual counterbalance valves, and a brake shuttle valve. The counterbalance valves are piloted open by system back pressure and the pressure from the output of the corresponding counterbalance valve. The motion control valve requires no adjustment and a replacement seal kit is available.

FLOW DIVIDER VALVE

The flow divider valve consists of a pair of restrictor orifices that allow equal fluid flow to or from the drive motors. It requires no adjustment.

FREEWHEEL VALVE

The freewheel valve is a manually operated valve. The closed position is for normal operation. The open position allows for free turning of the drive wheels. It requires no adjustment.

HYDRAULIC DRIVE MOTOR

There are four hydraulic drive motors, one for each wheel. They are not field repairable and should be replaced if leaking or faulty.

PRESSURE REDUCING VALVE

The pressure reducing valve is a spring opened relief valve. When pressure exceeds 400 psi, the valve is piloted closed, diverting fluid flow back to the hydraulic reservoir. It is factory preset but can be adjusted in the field by backing out from fully closed position 1/2 turn to set at 400 psi.

BRAKE FLOW CONTROL VALVE

The brake release pump and valve is a manually operated system

BRAKE RELEASE PUMP AND VALVE

The brake release pump and valve is a manually operated system used to release the brakes when towing the machine. It requires no adjustment and a seal kit is available.

STEER VALVE

The steer valve is a 3 position, 2-way, spring centered solenoid directional control valve. It has two solenoids and is closed centered. The coils can be replaced if faulty, and there is a replacement seal kit available.

STEER CYLINDER

The cylinder is a double acting type. Refer to the Mechanical Section of this manual for cylinder assembly and disassembly, repair or replacement procedures.

LIFT SYSTEM

The lift system consists of a lift valve, a holding valve, a flow control valve and a lift cylinder equipped with velocity fuse, as well as an emergency lowering valve.

LIFT VALVE

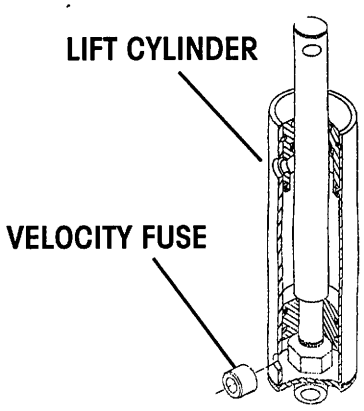
The lift valve is a 3 position, 2-way, spring centered solenoid directional control valve. It has two solenoids and is closed centered. The coils can be replaced if faulty, and there is a replacement seal kit available.

LIFT HOLDING VALVE (CHECK VALVE)

The holding valve is a solenoid operated valve which prevents flow from the cylinders in the deenergized state. When the solenoid coil is energized, the valve spool shifts, allowing flow from the lift cylinders to the hydraulic fluid reservoir.

FLOW CONTROL VALVE

The flow control valve restricts fluid flow **from** the lift cylinder, while providing free flow **to** the lift cylinder. It should be adjusted to approximately 2-1/4 turns from fully closed.



Lift Cylinder with Velocity Fuse.

LIFT CYLINDER

The lift cylinder is of the double acting type. Refer to the Mechanical Section of this manual for cylinder assembly and disassembly, repair or replacement procedures.

VELOCITY FUSE

There is a velocity fuse on the lift cylinder which acts as a holding valve. A 11 GPM fuse is used on the lift cylinder. Replace if faulty.

EMERGENCY (MANUALLY) LOWERING VALVE

This valve is a manual shut off valve located on the undercarriage. It is used only in emergency situations. During normal operation the valve should be in the "NORMAL OPERATION" position. Replace if faulty.

SECTION 3:
ELECTRICAL SYSTEM

Table of Contents, Section 3

ELECTRICAL SYSTEM

Battery 3-3
Battery Maintenance (in Storage) 3-3
Battery Maintenance (in Use) 3-3
Battery Preventive Maintenance 3-4
Battery Replacement 3-4
Movement Alarm 3-4
Tilt Alarm 3-4
Tilt Alarm Test 3-4
Tilt Alarm Adjustment 3-5
Descent Alarm 3-5
Relay 3-5
Emergency Stop Button 3-5

ELECTRICAL SYSTEM

The following section is a description of maintenance for the major components of the Falcon electrical system.

BATTERY

A 12 volt battery supplies the electrical power required to operate the electrical circuits for the Falcon.

BATTERY MAINTENANCE (IN STORAGE)

Follow these procedures for maintenance of battery on a machine not in use:

Keep battery clean. Electrolyte of "wet" batteries should be checked regularly, and kept at proper levels.

Never stack one battery directly on top of another, because post or container damage can result. If batteries are stored individually, place supporting boards between layers. Do not stack more than three high, and rotate stock so that the oldest batteries are used first.

"Wet" batteries should be kept fully charged. A "wet" battery, while in storage, should be recharged to full charge at the following intervals:

If stored at:	Recharge:
Below 40° F (4° C)	None required
40° to 60° F (4° to 15° C)	Every 2 months
Above 60° F (15° C)	Every month

BATTERY MAINTENANCE (IN USE)

Check battery and surrounding area for signs of damage or corrosion.

Check battery terminals for:

- **Corrosion**. Regularly clean connections and apply a non-metallic grease or protective spray to retard corrosion.
- **Loose connections.** Be sure all cable connections are tight, and that good contact is made with terminals.
- **Broken or frayed cables.** Be sure all cable connections are good, and that no loose or broken wires are exposed. Replace as needed.

Check battery electrolyte level. Replenish the electrolyte, if necessary. Remove vent caps before filling, and USE ONLY DISTILLED WATER. Fill all cells to the proper level. Do not overfill. Fill to level indicator (or 1/2 inch over the top of the separators if there is no level indicator). Fill after charging to prevent overflow of acid due to expansion. Do not use a hose to add water to batteries.

Allowing the electrolyte level to drop below the top of the separators will lead to shortened battery life. Excessive water usage can indicate that a battery has been overcharged, has been subjected to excessively high temperatures, or is nearing the end of its service life.

Keep battery clean. Wash the top of the battery, making sure all vent caps are in place. Do not allow cleaning water or other foreign matter to enter the cells. Use a solution of bicarbonate of soda and water to wash the battery if there is an accumulation of acid.

BATTERY PREVENTIVE MAINTENANCE

Once a month, after battery has been charged, spot check the specific gravity of two or more cells. A fully charged battery should indicate 1.28 specific gravity. If low readings are noted, check the following:

- Check terminals for corrosion, loose connections and broken or frayed cables.
- Check all cells with a hydrometer for variation in specific gravity. A variation of 0.03 points or more between cells is cause for concern. Mark the low cells.

Recheck specific gravity of all cells after recharging.

BATTERY REPLACEMENT

To remove the batteries, follow these procedures:

⚠WARNING

BEFORE REMOVING BATTERIES FROM THE UNIT, TURN OFF THE IGNITION SWITCH. THERE SHOULD BE NO POWER TO THE MACHINE.

Always disconnect the negative battery cables first.

Remove bolts holding battery to undercarriage.

Lift the battery from the undercarriage. Put the battery to the side and dispose of properly.

⚠ CAUTION

Always connect the positive battery cable first.

To install battery, lift and position it on undercarriage. Secure battery in position with wing nuts and battery hold downs. Connect battery cables.

MOVEMENT ALARM (OPTIONAL)

The movement alarm is activated as soon as the platform console drive lever is moved off the center "Neutral" position.

⚠WARNING

THE MOVEMENT ALARM IS PROVIDED FOR YOUR PROTECTION, AND PROTECTION OF PERSONS WORKING IN IMMEDIATE AREA. DISABLING THIS IMPORTANT SAFETY DEVICE MAY RESULT IN DEATH OR SERIOUS INJURY.

TILT ALARM (OPTIONAL)

The tilt alarm gives an audible warning when the machine is five degrees or more out of level. To replace the tilt alarm, remove it from its support and disconnect the wires.

TILT ALARM TEST

The alarm can be tested by manually tipping the alarm sensor. This "Push-to-Test" feature enables tilt alarm to be tested without losing its adjustment. Individually push down on each of the three fastened corners of the tilt alarm. There should be enough travel to cause the alarm to sound as each corner is pressed (there is approximately a three second delay).

If the alarm does not sound, the flange nuts have been tightened too far. Loosen the nut on the 90° corner and repeat this test procedure.

TILT ALARM ADJUSTMENT

The tilt alarm can be adjusted. Before attempting to adjust the alarm, park the machine on a flat, level surface.

Level the base of the alarm by tightening each of the three flange nuts on top of the spring loaded assembly and check it with a level.

Check that the electrical connections are correct.

DESCENT ALARM (OPTIONAL)

The descent alarm gives an audible warning when the platform is being lowered. To replace the descent alarm, remove it from the ground electrical box and disconnect the wires.

RELAY

The relays are located in the ground control box. (Refer to the schematic at the end of this manual for function of the relays and interconnect.)

EMERGENCY STOP BUTTON

There are two emergency stop buttons: one on the platform control and the other at ground controls.

When the emergency stop button is pressed, all functions stop immediately and the wheel brake is automatically applied. Turn the button clockwise to reset.

To replace the emergency stop button, remove the four control console cover screws to gain access for button removal. Remove the appropriate button mounting screws and wires.

SECTION 4:
MECHANICAL COMPONENTS

Table of Contents, Section 4

Mechanical Components

Undercarriage 4-3
Tires 4-3
Changing Tires 4-3
Wheels and Lug Nuts 4-4
Drive Motor 4-4
Steer Cylinder Seal Replacement 4-4
Hoses and Cables 4-5
Brake Disassembly 4-5
Brake Assembly 4-7
Boom Assembly 4-8
Lift Cylinder 4-8
Lift Cylinder Removal 4-8
Lift Cylinder Replacement 4-8
Lift Cylinder Seal Replacement 4-9
Boom Disassembly 4-10
Boom Assembly 4-11
Boom and Parallel Arm Pivot Pin
and Bushing Replacement 4-12
Lift Cylinder Holding Valve Replacement 4-12

MECHANICAL COMPONENTS

Following is a description of the major mechanical components of the Falcon.

UNDERCARRIAGE

Two removable side covers are used to protect the components mounted on the undercarriage.

⚠ CAUTION

When steam cleaning the undercarriage, cover the electrical components to prevent water damage.

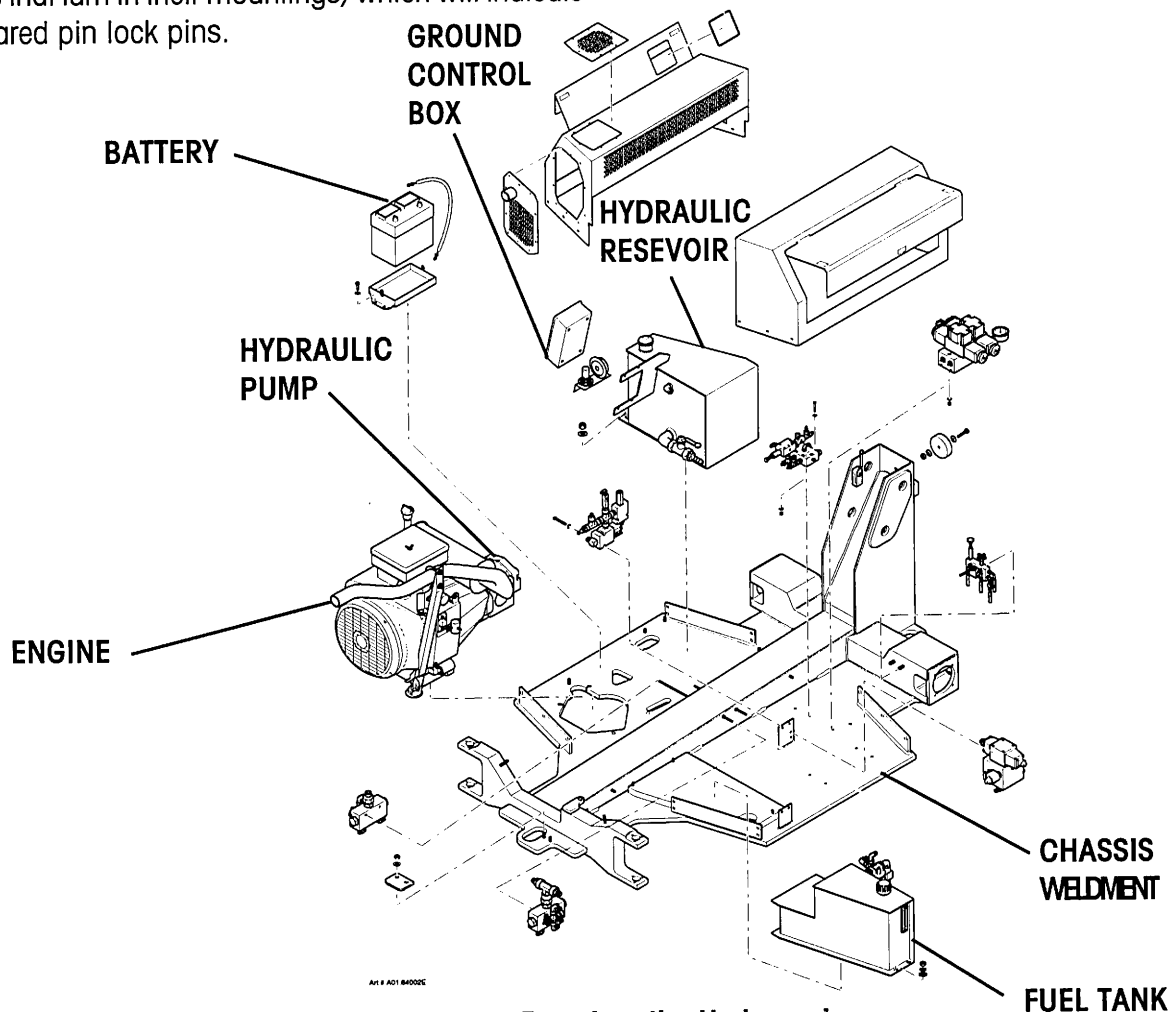
Steam clean the undercarriage once a year, and inspect all welds and brackets. Check for cylinder pins that turn in their mountings, which will indicate sheared pin lock pins.

TIRES

The Falcon uses 29 x 12.5 x 15 STG tires. Inspect tires for cuts, chunking, sidewall damage or abnormal wear and pressure (see Machine Specifications). Any tire faults MUST BE CORRECTED before further machine operation.

CHANGING TIRES

When a tire change is necessary, ALWAYS CHOCK THE WHEELS before you raise the machine. Loosen and remove lug nuts, and pull off the wheel assembly. Install the replacement wheel assembly. Fasten lug nuts , and tighten to proper torque (see Machine Specifications). Lower the machine and remove the chocks.



Components Found on the Undercarriage.

WHEELS AND LUG NUTS

Check the torque of the wheel lug nuts (see Machine Specifications) and examine the wheel rims for tightness and damage.

DRIVE MOTOR

There are four drive motors and they are not field repairable. If leaking or damaged, replace them.

STEER CYLINDER SEAL REPLACEMENT

The steer cylinder is of the double acting type. During operation, the cylinder should not leak, but a slight dampness at the rod seal is acceptable. The pins should be checked for wear.

1. Disconnect and plug the two hydraulic hoses.

⚠ CAUTION

To prevent damaging the internal components of the steer cylinder, keep the hydraulic hose ends free from contamination.
Take care not to damage rod surface and guard against dirt entering system.

2. Take the steer cylinder from the undercarriage by removing the two pins that hold it in place.
3. Remove rod gland (refer to Illustrated Parts Catalog).
4. Remove cylinder rod and piston.
5. Replace seals.
6. Carefully, slide the cylinder rod and piston into the cylinder body assembly.
7. Secure the rod gland in place.
8. Secure the steer cylinder in place with the two pins and unplug and reconnect the hoses.

HOSES AND CABLES

Inspect all hoses and electrical cables for security and damage. Hoses and cables should be examined for rubbing and chafing. Check for leaks at fittings. REPLACE ANY DAMAGED HOSES OR CABLES.

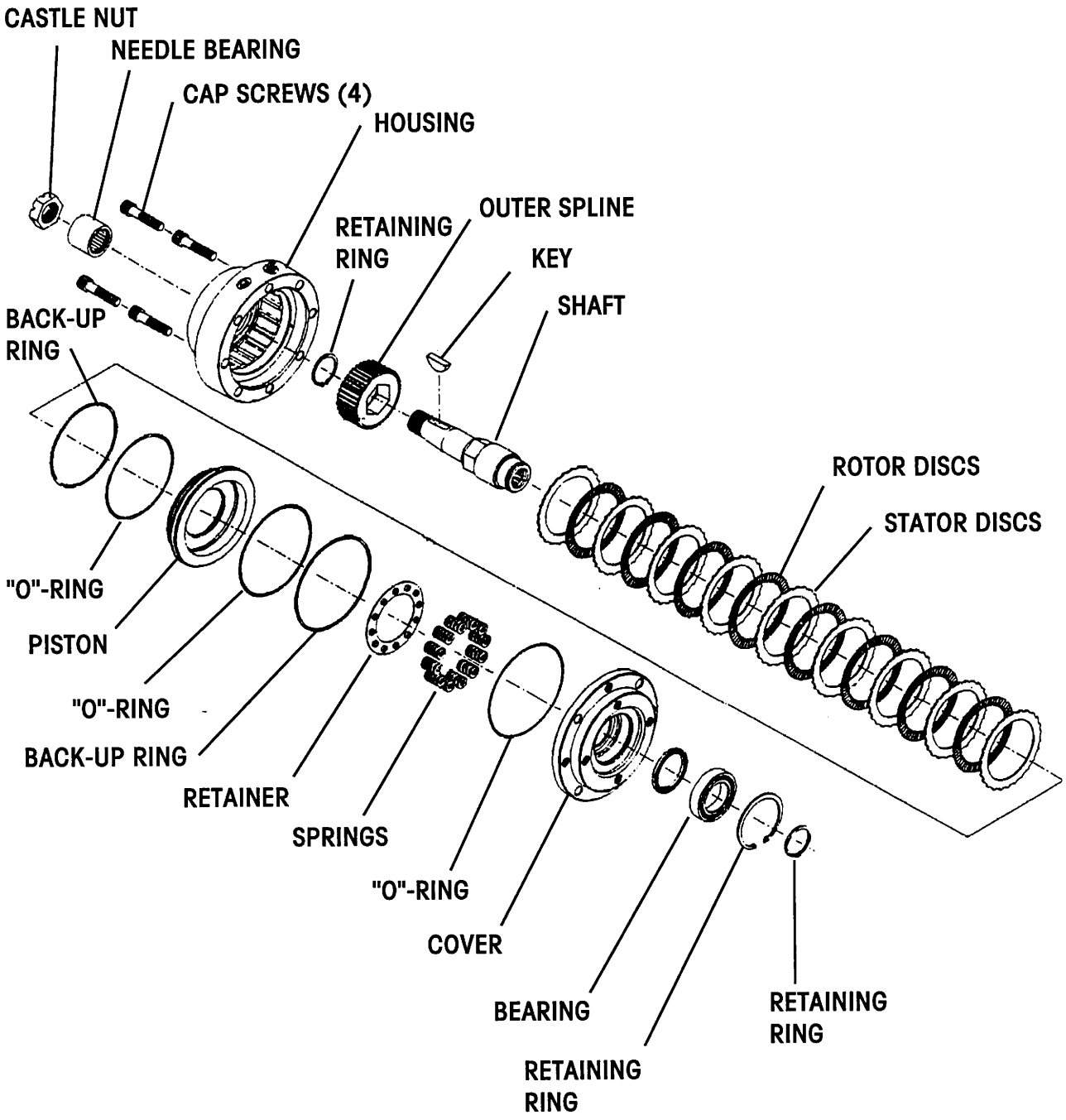
BRAKE DISASSEMBLY

1. Remove castle nut and key from output end of spline shaft.
2. Remove bleeder screw and any other plugs or fittings from pressure ports in housing. Drain fluid from brake as thoroughly as possible.
3. With tapered end of shaft facing up, remove four socket head cap screws. A suitable holding fixture is useful to keep brake in position.

⚠ CAUTION

Since cover is under spring tension of approximately 2500 LBs., the four bolts should be loosened evenly to relieve this force. If a hydraulic press is available (5000 LBs. max.), cover can be held in position while removing bolts.

4. Carefully pry upwards on housing to free it from piston.
5. Remove bearing from housing only if bearing is damaged.
6. Remove plate stack assembly consisting of rotors and stators from outer spline. Be careful to avoid contaminating friction surfaces with fluid because this is a dry design brake.
7. Remove retaining ring and outer spline from shaft.



Brake Assembly.

8. Carefully remove piston, making sure not to disturb spring structure.

9. Remove "o"-rings and back-up rings from piston. Care must be taken to not scratch or mar piston.

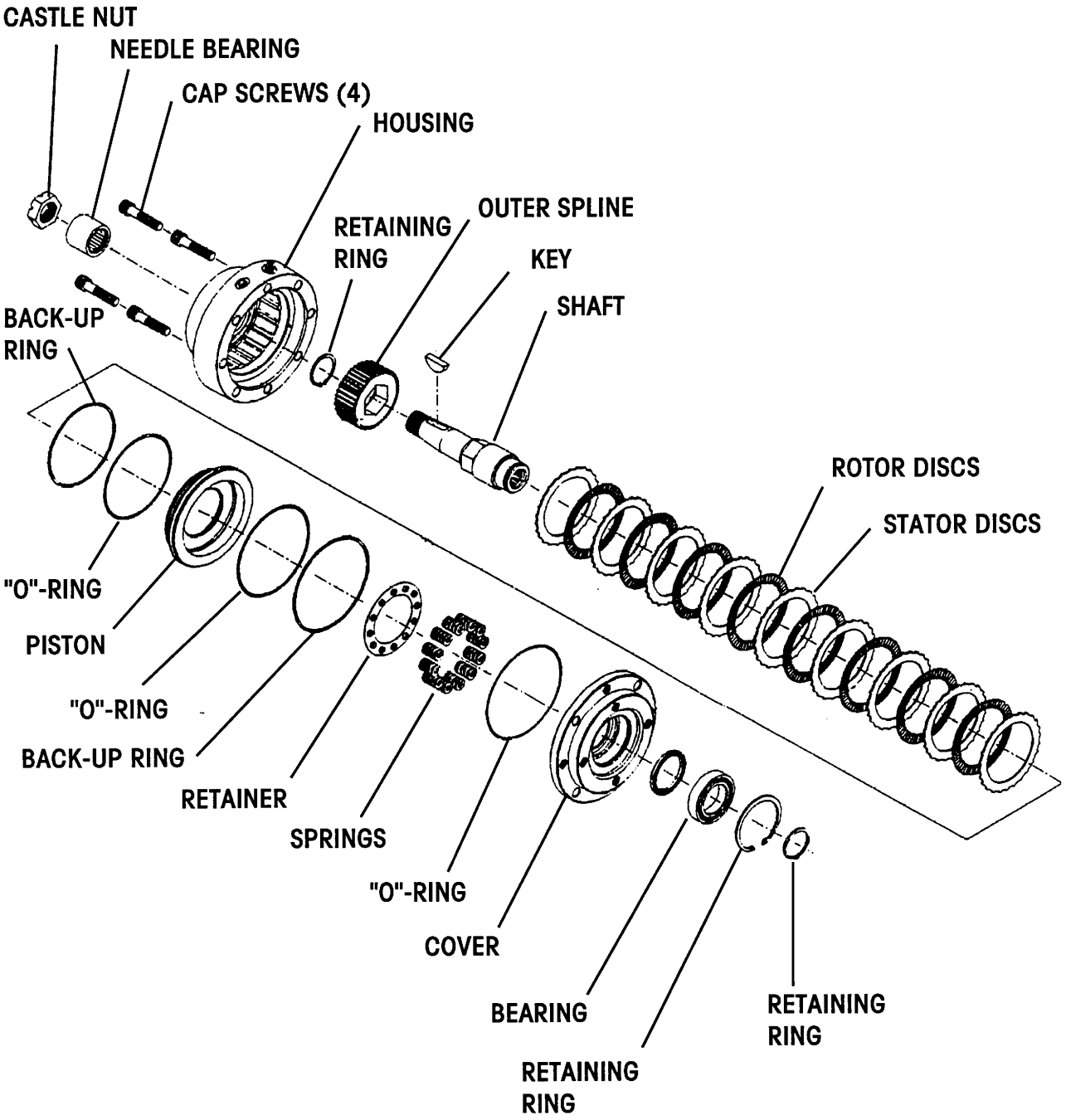
10. Before removing springs and retainer be sure to note pattern and color for reassembly purposes.

11. Remove retaining ring from shaft and press shaft out of bearing.

12. Remove retaining ring from cover and press bearing out of cover.

13. For brake models that have oil seal, remove seal from cover only if it is damaged.

14. Remove "o"-ring from cover.



Brake Assembly.

BRAKE ASSEMBLY

1. Lubricate all rubber components from repair kit with clean Mobil AW32. Clean all parts thoroughly before assembling.

2. Press needle bearing, if removed, into housing from wheel side until flush with housing.

3. Install outer spline onto shaft and secure with retaining ring to form shaft assembly.

4. While supporting housing, install shaft assembly, allowing shoulder on shaft to rest on bearing.

5. Install stator disc on spline shaft assembly and alternate with remaining rotor discs and stator discs.

6. Install "o"-rings and back-up rings on piston. Be sure "o"-rings are flat and all twists are removed. Care must be taken to not scratch or mar piston.

7. Lubricate piston with Mobil AW32. Carefully push piston into bore of housing until piston bottoms on top of lining stack. Be careful to avoid contaminating friction surfaces with fluid because this is a dry design brake.

8. Install retainer and springs in piston. Be careful to install springs according to pattern and color noted during disassembly.

9. If required, press oil seal into cover. Seal lip must be facing motor side of cover.Install primary disc.

10. Install "o"-ring onto cover.

11. Position cover on housing. Install four cap screws and tighten evenly to draw cover to housing. Torque cap screws to 85-90 Ft. LBs. If available, a hydraulic press will simplify installation of cover on housing. Clamp cover in position while tightening the cap screws.

12. Support brake on tapered end of shaft so that the bearing shoulder on shaft is above the bearing shoulder in cover.

13. Install bearing by pressing on inner race until bearing shoulders out on shaft.

14. Install retaining ring on shaft to retain bearing.

15. While supporting housing, allowing shaft assembly to move freely, press on outer race of bearing until it shoulders out on cover.

16. Install retaining ring into cover to retain bearing.

⚠ CAUTION

If hydrostatic bench testing is performed on the brake assembly, release pressure should not exceed 1000 psi (69 Bar/ 70.3 Kg-cm^2), unless four additional bolts are used for supplemental clamping.

BOOM

Clean the boom once a year and inspect along the boom structure, especially all welds and brackets.

LIFT CYLINDER

The boom lift cylinder is of the double acting type for all units. During operation, the cylinder should not leak, but a slight dampness at the rod seal - is acceptable. The pins should be checked for wear. Check the pin locking bolts for tightness. The cylinder and the block for the holding valve should be inspected for fluid leakage, damage and security.

LIFT CYLINDER REMOVAL

1. With platform raised, remove load from boom.
   - Evenly support platform with overhead crane or fork lift.
   - Place support between mid post and undercarriage.
2. Disconnect and plug the hydraulic hoses.

⚠ CAUTION

To prevent damaging internal components of lift cylinder, keep hydraulic hose ends free from contamination.

3. Disconnect the lowering valve wire.
4. Free the lift cylinder base by pounding out cylinder base pin half way out. This pin also secures the lower boom weldment. **Do NOT** pound this pin out completely.
5. Support the lift cylinder and remove the cylinder rod end pin from the upper boom weldment.
6. Remove the lift cylinder.

LIFT CYLINDER REPLACEMENT

1. Carefully position the lift cylinder in the machine with the holding valve and hose connections facing upward.
2. Connect the base end of lift cylinder to the machine by reinstalling the pin and all retainers.
3. Support the rod end of the cylinder and reconnect the hoses and wires to the cylinder.
4. Use the controls to extend or retract the cylinder to align the cylinder so the rod end pin can be installed.
5. Reconnect the upper boom weldment to rod end of lift cylinder, and secure with pin and retainers.
6. Use plastic wire ties to fasten the hose to the cylinder as it was prior to this installation.
7. Grease both ends of the cylinder at the two (2) grease fittings.
8. Raise the platform with the lower controls and remove any blocking, straps, or chains which were used to support the platform.
9. Raise and lower the platform several times to confirm correct operation and purge all air from the cylinder. Initially, there may be a hesitation due to the presence of air in the cylinder.

LIFT CYLINDER SEAL REPLACEMENT

1. Remove lift cylinder.

⚠ CAUTION

Take care not to damage the rod surface and guard against dirt entering the system.

2. Remove end gland from lift cylinder (Refer to Illustrated Parts Catalog).
3. Remove cylinder shaft and piston.
4. Remove seals.
5. Replace cylinder seals.
6. Replace cylinder shaft and piston.
7. Secure end gland to lift cylinder.
8. Replace lift cylinder in the unit.

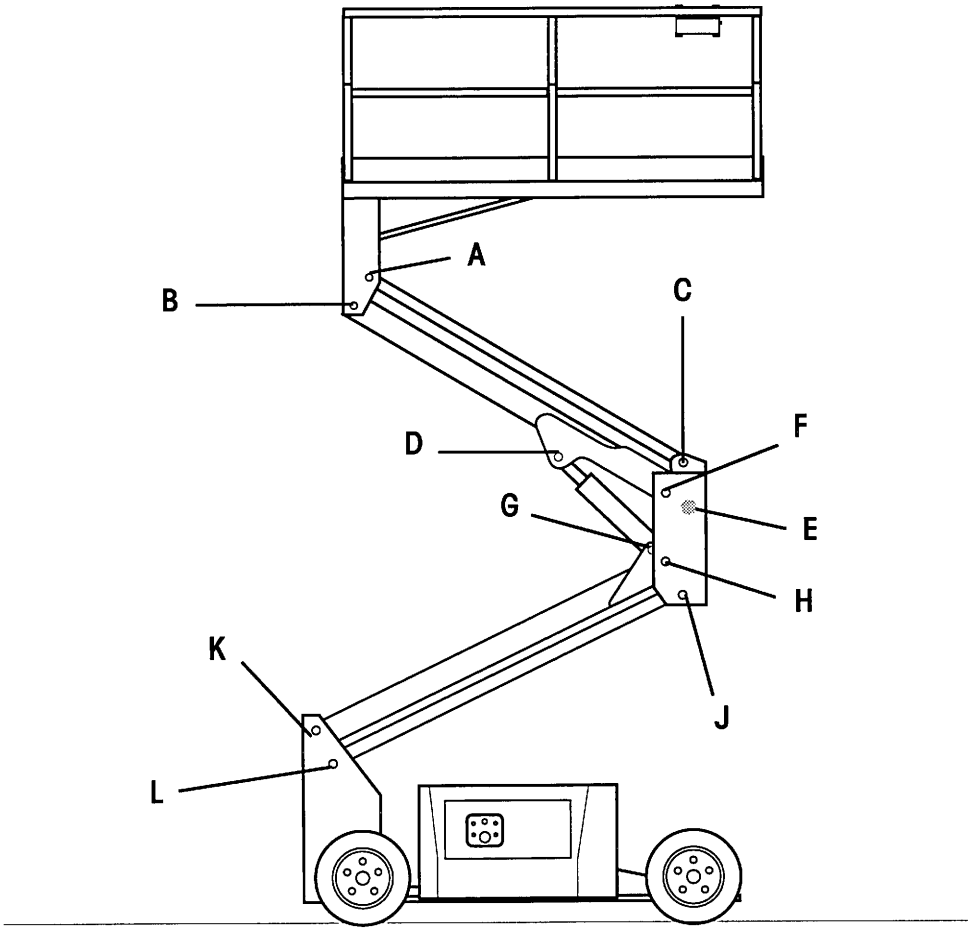
BOOM DISASSEMBLY

1. With platform raised, remove load from boom.
   - Evenly support platform with overhead crane or fork lift.
   - Place support between mid post and under-carriage.
2. Disconnect cables from platform controls and remove cable from platform.
3. From upper post, remove retaining rings and lock pin from "A", and remove pivot pin.
4. From upper post, remove retaining rings and lock pin from "B", and remove pivot pin.
5. Remove platform.
6. From mid post, remove retaining rings and lock pin from "C", and remove pivot pin.
7. Remove upper parallel arm.

⚠ DANGER

WHEN REMOVING PIVOT PIN "D" FROM MID POST, SECURE MID POST AND LIFT CYLINDER TO PREVENT PERSONAL INJURY.

8. From upper boom weldment, remove retaining rings and lock pin from "D", and remove pivot pin.



Art #A00.00731 E

Boom Disassembly and Assembly.

9. From mid post, remove retaining rings and lock pin from "E", and remove pivot pin.

10. From mid post, remove retaining rings and lock pin from "F", and remove pivot pin.

11. Remove upper boom weldment.

12. From lower boom weldment, remove retaining rings and lock pin from "G", and remove pivot pin and link assembly. (The link assembly connects the lower boom weldment to the upper boom weldment, and keeps the booms synchronized as the lift cylinder raises the upper boom.)

⚠ DANGER

WHEN REMOVING PIVOT PIN "H" FROM MID POST, SECURE MID POST AND LIFT CYLINDER TO PREVENT PERSONAL INJURY.

13. From lower boom weldment, remove retaining rings and lock pin from "H", and remove pivot pin.

14. Remove lift cylinder, disconnecting and plugging hoses.

⚠ CAUTION

To prevent damaging internal components of boom lift cylinder, keep hydraulic hose ends free from contamination.

15. From lower boom weldment, remove retaining rings and lock pin from "J", and remove pivot pin.

16. Remove mid post and swing lower boom weldment and parallel arm so that they rest on the undercarriage.

17. From lower post, remove retaining rings and lock pin from "K", and remove pivot pin.

18. Remove lower boom weldment.

19. From lower post, remove retaining rings and lock pin from "L", and remove pivot pin.

20. Remove lower parallel arm.

BOOM ASSEMBLY

1. Attach lower parallel arm to lower post at "L" with retaining rings and lock pin.

2. Attach lower boom weldment to lower post at "K" with retaining rings and lock pin.

⚠ DANGER

WHEN INSTALLING PIVOT PIN "J" TO MID POST, SECURE MID POST TO PREVENT PERSONAL INJURY.

3. Attach lower parallel arm to mid post at "J" with retaining rings and lock pin.

4. Attach lower boom weldment and base end of lift cylinder to mid post at "H" with retaining rings and lock pin.

5. Raise the mid post and place support between mid post and undercarriage.

6. Attach link assembly to mid post at "G" with retaining rings and lock pin. (The link assembly connects the lower boom weldment to the upper boom weldment, and keeps the booms synchronized as the lift cylinder raises the upper boom.)

7. Attach upper boom weldment to mid post at "F" with retaining rings and lock pin.

8. Attach link assembly to mid post at "E" with retaining rings and lock pin.

9. Attach rod end of lift cylinder to upper boom weldment at "D" with retaining rings and lock pin.

10. Position the platform over the machine with overhead crane or forklift.

11. Attach upper boom weldment to upper post at "B" with retaining rings and lock pin.

12. Attach upper parallel arm to mid post at "C" with retaining rings and lock pin.

13. Attach upper parallel arm to upper post at "A" with retaining rings and lock pin.

14. Connect cables to platform controls.

15. Remove supports.

BOOM PIVOT PIN AND BUSHING REPLACEMENT

Pivot pin and bushing removal from the boom are required if they are worn or damaged.

1. Disassemble the boom (see Boom Dissassembly, earlier in this section).

2. Inspect all pivot pins and bushings for signs of damage or wear.

3. As required, split the bushings with a hammer and chisel, and remove them.

3. Seat replacement bushings, using an arbor press.

4. Assemble the boom (see Boom Assembly, earlier in this section).

   Use a light oil to lubricate pivot pins (new, if required) and bushings (see Lubrication Chart).

LIFT CYLINDER HOLDING VALVE REPLACEMENT

The holding valve is integrated into the upper side of the lift cylinder.

The solenoid valve cartridge has a 100 mesh screen and solenoid valve coil. Make certain that all power is off and that lift cylinder bears no load before repairing.

SECTION: 5
TROUBLESHOOTING

Table of Contents

General Troubleshooting Tips 5-3
Troubleshooting Chart 5-4

Index to Troubleshooting Chart

D

Drive function - none 5-9
Drive motor failure 5-10
Drives forward, but not reverse 5-9
Drives reverse, but not forward 5-9

H

High speed drive with scissors lowered - none 5-10
Hydraulic fluid darkens 5-4
Hydraulic functions slow 5-7

L

Lift function - none 5-12
Lift cylinders drift down 5-6
Lower function - none 5-12

P

Parking brake doesn't engage 5-11
Parking brake doesn't release 5-10
Parking brake drags 5-11
Parking brake slips 5-11
Pitting and etching of pump gear 5-4
Premature pump failure 5-4
Pump case turns brown 5-4
Pump, catastrophic failure 5-5
Pump gear wear 5-5
Pump noise or squeal 5-7
Pump output - none 5-6
Pump pressure, excessive 5-7
Pump pressure - loss 5-5

S

Spools stick 5-4
Steer function - none 5-7
Steer function - none; all other functions operate 5-8

T

Traversing deck function - none 5-12

GENERAL TROUBLESHOOTING TIPS

Before investigating a malfunction, check the following items:

- The Motor Starter Switch should be in the "ON" position.
- Check that battery connections are secure and battery is fully charged.
- Check that the Emergency Stop Button is released (pulled up).
- Check that hydraulic fluid is at the correct level.
- Check that the Emergency Lowering Valve is in normal operation position.
- Check that the Motor Release Valve is closed.
- Check that the Break Release Valve is open.
- Check that the Circuit Breaker is in the "ON" position.

Common Causes of Hydraulic System Malfunctions:

- Incompatible hydraulic fluids mixed, destroying the additives and causing varnish build up resulting in the valves to stick.
- Water in the hydraulic fluid due to a damp climate.
- Improper hydraulic fluid used; viscosity too high in cold climates, viscosity too low in warm climates.

NOTE: Mobil AW32 is a multiple viscosity oil that is light enough for cold climates and resists thinning in warm climates.

TROUBLESHOOTING CHART

Problem	Probable Cause	Solution
• Excessive heat will cause abnormal wear on seals and metal parts due to lowered viscosity. Symptoms to watch for are: - pump case turns brown, - hydraulic fluid darkens, - pump fails prematurely.	1. Excessive water in the hydraulic fluid.	1. Drain and flush hydraulic system. See Section 2, System Flushing Procedure.
	2. Improper oil viscosity.	2. Replace hydraulic fluid with the correct fluid. See Section 2, Fluid Recommendations.
	3. Improper lubrication and hydraulic fluid.	3. Drain and flush hydraulic system. See Section 2, System Flushing Procedure.
	4. Loop valve stuck closed.	4. Check loop valve operation. See Section 2, Loop Valve.
• Water in hydraulic fluid. Symptoms to watch for are: pitting and etching of pump gear causing heat build up and premature pump failure.	1. Damp climate or condensation in the reservoir.	1. Drain and flush hydraulic system. See Section 2, System Flushing Procedure.
	2. Hydraulic fitting or port open to contaminants.	2. Drain and flush hydraulic system. See Section 2, System Flushing Procedure. Replace worn pump. See Illustrated Parts Catalog.
• Varnish, the dark brownish residue left from oxidation of hydraulic fluids. Symptoms to watch for are: residue will cause valve spools to stick and will hang up moving parts with close tolerances.	1. Incompatible fluids or poor quality fluids.	1. Drain and flush hydraulic system, then fill with recommended hydraulic fluid. See Section 2, System Flushing Procedure.
	2. Excessive heating of the fluids.	2. Drain and flush hydraulic system, then fill with recommended hydraulic fluid. See Section 2, System Flushing Procedure.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• Poor lubrication, parts break through lubricant causing metal to metal contact. Symptoms to watch for are: pump gear wear and excessive heat build up.	1. Hydraulic fluid viscosity low.	1. Drain and flush hydraulic system, then fill with recommended hydraulic fluid. See Section 2, System Flushing Procedure.
	2. Improper or poor grade hydraulic fluid or lubricant without proper anti-wear additives.	2. Drain and flush hydraulic system, then fill with recommended hydraulic fluid and lubricant. See Section 2, System Flushing Procedure.
• Cavitation, a gaseous condition within the fluid stream where the pressure is reduced to the vapor pressure of the fluid. The higher the system pressure the more violent the reaction. Symptoms to watch for are: catastrophic pump failure or loss of pump pressure.	1. Low reservoir fluid level.	1. Add hydraulic fluid. See Section 2, Fluid Recommendations.
	2. Air leaks in suction strainer and line.	2. Tighten hose clamps on suction line. Check fittings for tightness. Check shutoff valve.
	3. Improper hydraulic fluid.	3. Have fluid analyzed regularly and drain and flush hydraulic system, then fill with recommended hydraulic fluid. See Section 2, System Flushing Procedure.
	4. Vaporization of water.	4. Have fluid analyzed. Drain and flush hydraulic system, then fill with recommended hydraulic fluid. See Section 2, System Flushing Procedure.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• Lift cylinder drifts down.	1. Holding valve faulty.	1. Replace holding valve. Refer to Illustrated Parts Catalog.
	2. Cylinder packing is damaged.	2. Replace cylinder packing. Refer to Illustrated Parts Catalog.
	3. Emergency lowering valve.	3. Replace emergency lowering valve. Refer to Illustrated Parts Catalog.
• No pump output.	1. Broken pump drive shaft.	1. Replace pump. Refer to Illustrated Parts Catalog.
	2. Fluid leaks.	2. Tighten hose clamps at pump inlet.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• Hydraulic functions slow.	1. Low pressure.	1. Check system pressure and adjust if necessary. Refer to Loop Pressure Relief Valve in Section 2.
	2. Pump component failure.	2. Replace pump. Refer to Illustrated Parts Catalog.
	3. Slow engine speed.	3. Check engine speed.
	4. Damaged pump.	4. Replace pump. Refer to Illustrated Parts Catalog.
• Excessive pump pressure.	• Loop pressure relief valve.	• Readjust relief valve. See Loop Pressure Relief Valve, Section 2.
• Pump noise or squeal.	1. Low pressure.	1. Check system pressure and adjust, as required. See Loop Pressure Relief Valve in Section 2.
	2. Pump cavitation.	2. Check hydraulic reservoir oil level.
• No steer function.	1. Steer valve not shifting.	1. See Steer Valve in Section 2. Replace valve. Refer to Illustrated Parts Catalog.
	2. Faulty relief valve.	2. Replace valve. See Loop Pressure Relief Valve in Section 2.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• Unit will not steer; all other functions operate.	1. Mechanical malfunction.	1. Steer cylinder may not be mechanically connected to steering linkage. Check for disconnected or damaged steering linkage; connect steering linkage and/ or replace. Refer to Illustrated Parts Catalog.
	2. Steer valve not shifting.	2. See Steer Valve in Section 2. Replace valve. Refer to Illustrated Parts Catalog.
	3. Faulty relief valve.	3. See Loop Pressure Relief Valve in Section 2.
• Unit will not go into high speed drive with platform lowered.	1. Faulty drive proportional valve.	1. Check and replace if failed. Refer to Illustrated Parts Catalog.
	2. Faulty joystick.	2. Check for a minimum of 8 VDC output on "A" terminal of joystick.
	3. Faulty relief valve.	3. See Loop Pressure Relief Valve in Section 2.
	4. Faulty pump.	4. Check system pressure. See Machine Specifications.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• No drive function.	1. Brake cylinder does not release.	1. Check pressure supply to brake cylinder. Install gauge in line at brake cylinder. If no pressure, consult factory.
	2. Motor shaft key is sheared.	2. Inspect, repair or replace. Refer to Illustrated Parts Catalog.
	3. Drive valve not shifting.	3. See Drive Valve in Section 2. Replace valve. Refer to Illustrated Parts Catalog.
	4. Faulty relief valve.	4. See Loop Pressure Relief Valve in Section 2.
• Drives in forward, but not in reverse.	• Faulty drive valve.	• See Drive Valve in Section 2. Replace valve. Refer to Illustrated Parts Catalog.
	• Faulty drive controller (joystick).	• Check for variable output (0-8 VDC) of controller and that microswitch in forward is operational.
• Drives in reverse, but not in forward.	• Faulty drive valve.	• See Drive Valve in Section 2. Replace valve. Refer to Illustrated Parts Catalog.
	• Faulty drive controller (joystick).	• Check for variable output (0-8 VDC) of controller and that microswitch in reverse is operational.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• Wheel drive motor failure.	1. Hydraulic Fluid.	1. Check for contamination of hydraulic fluid. See Hydraulic Fluid Analysis, Section 2. • Check that the hydraulic system has been flushed after component failure in the drive system. • Check that the correct grade of hydraulic fluid is used. See Fluid Recommendations, Section 2.
	2. Wheel drive motor.	2. Wheel drive motor failure; replace motor. Refer to Illustrated Parts Catalog.
	3. Drive motor shaft key sheared.	3. Check and replace if failed. Refer to Illustrated Parts Catalog.
• Parking brake doesn't release.	1. Faulty motion control valve with brake shuttle.	1. Replace motion control valve with brake shuttle. Refer to Illustrated Parts Catalog.
	2. Brake cylinder piston seal leaking.	2. Check brake cylinder for piston seal leakage. Replace as necessary. Refer to Section 4.
	3. Bad "o"-rings.	3. Replace "o"-rings. Refer to Section 4.
	4. Discs frozen.	4. Replace disc stack. Refer to Section 4.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• Parking brake doesn't engage.	1. Brake cylinder spring failure.	1. Check brake cylinder for broken spring. Repair or replace as necessary. Refer to Mechanical Components, Section 4.
	2. Plugged brake control needle valve.	2. Clean needle valve or replace as necessary. Refer to Illustrated Parts Catalog.
• Brake slips.	1. Excessive pressure in hydraulic system.	1. Check filters, hose size, restrictions in other hydraulic components. Replace filter element if necessary.
	2. Oil in brake.	2. Replace oil seal in brake. Check motor seal. Check piston seals. Internal components will need to be inspected, cleaned and replaced as required. Refer to Section 4.
	3. Disc plates worn.	3. Check disc thickness.
	4. Springs broken or have taken a permanent set.	4. Check release pressure.
• Brake drags.	1. Low actuation pressure: runs hot.	1. Place pressure gauge in bleed port and check pressure with system on.
	2. Bearing failure.	2. Replace bearing. Refer to Section 4.
	3. Oil in brake.	3. Drain oil and refill as specified for brakes.

TROUBLESHOOTING CHART (CONTINUED)

Problem	Probable Cause	Solution
• No lift function.	1. Faulty cylinder.	1. Possible plugged lines, cylinder ports or damaged cylinder packings. Inspect, repair or replace cylinder. Refer to Illustrated Parts Catalog.
	2. Loop pressure relief setting too low.	2. Adjust system pressure. See Loop Pressure Relief Valve in Section 2.
	3. Lift valve stuck in open position.	3. See Lift Valve in Section 2. Replace valve. Refer to Illustrated Parts Catalog.
• No lower function.	1. Faulty lift valve.	1. See Lift Valve in Section 2. Replace valve.
	2. Descent flow control valve plugged.	2. Clean flow control valve; replace as necessary. See Illustrated Parts Catalog.
	3. Faulty lift holding valve	3. Replace lift holding valve. Refer to Illustrated Parts Catalog
	4. Faulty velocity fuse.	4. Replace velocity fuse. Refer to Mechanical Components, Section 4.

SECTION 6:
MAINTENANCE

Table of Contents, Section 6

General Maintenance Tips 6-3
First Three Months of Operation 6-4
Routine Servicing 6-4
Shift Service 6-5
Weekly Service 6-5
Monthly Service 6-5
Semi-Annual Service 6-6
Annual Service 6-6
Four Year Interval Service 6-7
Shift Operational Checklist 6-8
Weekly Operational Checklist 6-10
Monthly Operational Checklist 6-11
Semi-Annual Operational Checklist 6-12

MAINTENANCE

The Simon Vertical Lift is designed to require a minimum amount of maintenance. However, it is essential that the specified services be performed at the indicated intervals, and that the instructions contained in this manual are followed to ensure safety and reliability.

⚠ DANGER

DEATH OR SERIOUS INJURY MAY RESULT IF MACHINE IS OPERATED IN AN UNSAFE CONDITION. DO NOT OPERATE ANY MACHINE IF IN UNSAFE OPERATING CONDITION.

GENERAL MAINTENANCE TIPS

⚠WARNING

IMMEDIATELY REPORT TO YOUR SUPERVISOR ANY DEFECT OR MALFUNCTION WHICH BECOMES EVIDENT DURING OPERATION. ANY DEFECT THAT AFFECTS THE SAFETY OF OPERATORS OR NEARBY PERSONNEL SHALL BE REPAIRED PRIOR TO CONTINUED USE OF THE WORK PLATFORM.

Correct lubrication is an essential part of preventive maintenance to minimize wear on working parts and ensure against premature failure. By maintaining correct lubrication, the possibility of mechanical failure and resulting downtime is reduced to a minimum.

⚠WARNING

INSPECTION AND MAINTENANCE SHOULD BE PERFORMED BY QUALIFIED PERSONNEL FAMILIAR WITH THE EQUIPMENT.

The actual operating environment of the machine governs the inspection schedule. The following operational checklists indicate the areas of the machine to be checked and the intervals at which they should be checked under normal operating conditions.

Regular inspection and conscientious maintenance is the key to efficient economical operation. It will help to assure that your equipment will perform satisfactorily with a minimum of service and repair.

⚠WARNING

HYDRAULIC FLUID UNDER PRESSURE IS HOT, AND CAN PENETRATE AND BURN THE SKIN, DAMAGE EYES, AND MAY CAUSE SERIOUS INJURY, BLINDNESS, AND EVEN DEATH. CORRECT LEAKS IMMEDIATELY.

FLUID LEAKS UNDER PRESSURE MAY NOT ALWAYS BE VISIBLE.

IF MINERAL-BASED HYDRAULIC FLUID HAS PENETRATED THE SKIN, IT MUST BE MEDICALLY TREATED, WITHIN A FEW HOURS, BY A DOCTOR FAMILIAR WITH THIS TYPE OF INJURY.

ALWAYS CLEAN UP HYDRAULIC FLUIDS AND LUBRICATING OILS SPILLED ON THE UNIT. SPILLS CAN CAUSE FALLS, AND ARE A SERIOUS FIRE HAZARD.

⚠ DANGER

NEVER PERFORM SERVICE ON THE UNIT (WITH PLATFORM ELEVATED) WITHOUT FIRST BLOCKING THE ELEVATING ASSEMBLY IN PLACE !

- ALWAYS clean the surrounding area before opening hydraulic components.
- Never open a hydraulic system when there are contaminants in the air.
- Never leave hydraulic components or hoses open. They must be protected from contamination (including rain) at all times.
- Use only recommended lubricants (see Lubrication Chart in front of this manual). Improper lubricants or incompatible lubricants may be as harmful as no lubrication.
- Watch for makeshift "fixes" which can jeopardize safety as well as lead to more costly repairs.
- Any work platform found not to be in safe operating condition should be removed from service until repaired. All repairs should be made by authorized personnel in conformance with the manufacturer's operating, maintenance and repair manuals.

FIRST THREE MONTHS OF OPERATION

As with any new machine, minor fluid leaks may occur until the various hydraulic components and pipe fittings are fully seated.

It is particularly important that, for the first three months of operation, all hydraulic components, hoses and pipe fittings be checked regularly for leaks and tightness, and corrective action taken as required.

Correction of minor fluid leaks and general tightening of machine components during this initial period are not considered as reimbursable expenses under the Simon Limited Warranty.

The hydraulic pump, cylinders and pressure valves are self-lubricating.

ROUTINE SERVICING

NOTE: The following recommendations are based on advice of our component suppliers, and the requirements of various safety regulations. They should be followed with discretion based on factors such as amount and type of machine usage, environmental conditions, and local safety regulations.

IMPORTANT: Make certain that the unit is inspected per the operational checklists at the end of this section.

SHIFT SERVICE

Hydraulic System

Before checking the hydraulic fluid level, ensure that the platform is stowed in the traveling position, and the machine is standing on level ground. Fluid level must be to full mark on the sight gauge. Refer to Lubrication Chart for correct grade of hydraulic fluid.

Ensure that the filler cap is secure to prevent entry of water or other impurities into the tank.

Tire Condition

Check that the tires are not damaged.

Platform Rails and Safety Chain

Check security of platform rails and safety chain.

Battery

Check battery electrolyte level and connections.

Steering

Check the steering cylinder for fluid leakage. Inspect steering linkage for signs of wear.

Pivot Pin

Examine all pivot pins on lift arms and cylinders to ensure that they are positively secured in position.

Test All Machine Systems

Test the operation of the drive assembly, including drive motor and steering.

Test the operation of the lift/ lower functions.

Checklist

Perform all items on the Shift Operational Checklist found later in this section.

WEEKLY SERVICE

Hydraulic System

Pressurize the hydraulic circuit and inspect the system for any signs of leakage, particularly at flexible hoses, connections and hydraulic components.

Checklist

Perform all items on the Weekly Operational Checklist found later in this section.

MONTHLY SERVICE

Hydraulic System

Check hydraulic fluid color. If the hydraulic fluid does not appear clear amber, but has a cloudy appearance, it is usually an indication that water is present. A dark brown color, accompanied by a strong "burnt" smell, indicates that the fluid has overheated. If either condition occurs, a complete hydraulic fluid and filter change will be necessary.

The cause of hydraulic fluid deterioration should be investigated and rectified. Have fluid analyzed by a qualified laboratory.

Chassis Bolt

Check all bolts for signs of looseness. Refer to individual items in the Monthly Checklist.

Cylinder

Check all cylinders for hydraulic fluid leakage.

Pivot Pin and Grease Fitting

Lubricate all pivot pins and grease fittings.

Platform Mounting

Check that platform weldments and platform frame members are in good condition.

Checklist

Perform all items on the Monthly Operational Checklist found later in this section.

SEMI-ANNUAL SERVICE

Lift Cylinder

Fully lower, then raise the platform. At each extreme position, check that there is no movement between cylinder rod and bearing housing, or between cylinder cap and tube.

Hydraulic Filter

Replace hydraulic filter element.

Checklist

Perform all items on the Semi-Annual Operational Checklist found later in this section.

ANNUAL SERVICE

NOTE: Machine Annual Inspection Report Forms are available from Simon Aerials Inc.

Flexible Hoses

Inspect all hoses over their entire length. Replace any hoses showing looseness or corrosion at end fittings. Replace hoses with cracking, blistering or excessive wear of outer protective covering.

Hydraulic Fluid

If hydraulic fluid has been regularly maintained, it should only require changing once every year, depending on maintenance, temperature, application, duty cycle, and atmospheric conditions.

Hydraulic Fluid Tank

Carefully check the condition of the fluid inside the tank to ensure that it flows easily and is of clear, amber color. In cases of gross contamination, it will be necessary to completely drain and refill the entire hydraulic system.

Place a suitable waste oil container under the drain tap, or attach a suitable hose from the drain tap to the container.

Open the drain tap, and completely drain the fluid from the tank.

Clean or replace the suction hose, and close the drain tap. Refill the tank to the correct level.

Structural Examination

A thorough examination of the machine should be carried out for signs of corrosion, misalignment, material fractures, and other damage. Particular attention should be given to the condition of welded joints.

FOUR YEAR INTERVAL SERVICE

Pivot Pin and Bearing

Remove all pivot pins for examination. Check the pivot pin bearings with the pivot pins removed. Replace, as necessary.

SHIFT OPERATIONAL CHECKLIST

All checks must be completed before operation of the Simon FALCON.

DATE _____ **INSPECTED BY** _____

MODEL NUMBER _____ **SERIAL NUMBER** _____

GENERAL INFORMATION

1. Keep inspection records up-to-date.
2. Record and report all discrepancies to your supervisor.
3. A dirty machine cannot be properly inspected.
   Keep your Simon FALCON clean!!

⚠WARNING

THIS CHECKLIST MUST BE USED AT DAILY INTERVALS OR AFTER EVERY 6 TO 8 HOURS OF USE, WHICHEVER IS SOONER. FAILURE TO DO SO COULD ENDANGER THE LIFE OF THE OPERATOR. ALWAYS REMEMBER, A LITTLE PREVENTIVE MAINTENANCE CAN SAVE MUCH MORE THAN IT COSTS.

INITIAL	DESCRIPTION
_____	1. Perform a visual inspection of all machine components, i.e. missing parts, torn or loose hoses, hydraulic fluid leaks, torn or disconnected wires, damaged tires etc. Replace components as necessary. The module covers on both sides can be opened to inspect components inside.
_____	2. Check engine oil, fuel and coolant levels.
_____	3. Check battery charge level and connections.
_____	4. Check hydraulic fluid level with the unit in stowed position and ensure hydraulic tank shutoff valves are open.
_____	5. Check tires for correct pressure (see Machine Specifications).
_____	6. Check hoses and cable for worn areas.

Continued on following page . . .

SHIFT OPERATIONAL CHECKLIST (CONTINUED)

INITIAL	DESCRIPTION
_____	7. Check platform rails and safety chain for damage.
_____	8. Check pivot pins for security.
_____	9. Check that all warning and instructional labels are legible and secure.
_____	10. Start engine and check hydraulic pressure (see Machine Specifications).
_____	11. Check that the emergency lowering valve operates properly.
_____	12. Check platform controls for proper operation.
_____	13. Inspect the entire machine for signs of damage, broken welds, loose bolts, improper or makeshift repairs.
_____	14. Check pin joints and retaining bolts for security.
_____	15. Follow engine service requirements. Refer to the Engine Maintenance Manual supplied with your machine.

ADDITIONAL MAINTENANCE REQUIREMENTS FOR SEVERE USAGE APPLICATIONS

INITIAL	DESCRIPTION
_____	16. Check hydraulic system for leakage after every eight (8) hours of operation.
_____	17. Follow instructions for servicing engine when used severely. Refer to the Engine Maintenance Manual supplied with your machine.

WEEKLY OPERATIONAL CHECKLIST

All checks must be completed before operation of the Simon FALCON.

DATE _____ **INSPECTED BY** _____

MODEL NUMBER _____ **SERIAL NUMBER** _____

GENERAL INFORMATION

1. Keep inspection records up-to-date.
2. Record and report all discrepancies to your supervisor.
3. A dirty machine cannot be properly inspected.
   Keep your Simon FALCON clean!!

⚠WARNING

THIS CHECKLIST MUST BE USED AT WEEKLY INTERVALS OR EVERY 25 HOURS, WHICHEVER OCCURS FIRST. FAILURE TO DO SO COULD ENDANGER THE LIFE OF THE OPERATOR. ALWAYS REMEMBER, A LITTLE PREVENTIVE MAINTENANCE CAN SAVE MUCH MORE THAN IT COSTS.

INITIAL	DESCRIPTION
_____	1. Perform all checks listed on Shift Operational Checklist.
_____	2. Check battery electrolyte level and specific gravity (fully charged specific gravity should be 1.265).
_____	3. Check wheel lug nuts for proper torque (see Machine Specifications).
_____	4. Follow engine service requirements. Refer to the Engine Maintenance Manual supplied with your machine.

ADDITIONAL MAINTENANCE REQUIREMENTS FOR SEVERE USAGE APPLICATIONS

INITIAL	DESCRIPTION
_____	5. Inspect condition of hydraulic fluid in the reservoir. Oil should have a clear amber color.
_____	6. Lubricate all grease fittings (see Lubrication Chart).
_____	7. Lubricate all steering linkages and pivot points.
_____	8. Follow instructions for servicing engine when used severely. Refer to the Engine Maintenance Manual supplied with your machine.

MONTHLY OPERATIONAL CHECKLIST

All checks must be completed before operation of the Simon FALCON.

DATE _____ **INSPECTED BY** _____

MODEL NUMBER _____ **SERIAL NUMBER** _____

GENERAL INFORMATION

1. Keep inspection records up-to-date.
2. Record and report all discrepancies to your supervisor.
3. A dirty machine cannot be properly inspected.
   Keep your Simon FALCON clean!!

⚠WARNING

THIS CHECKLIST MUST BE USED AT MONTHLY INTERVALS OR EVERY 100 HOURS, WHICHEVER OCCURS FIRST. FAILURE TO DO SO COULD ENDANGER THE LIFE OF THE OPERATOR. ALWAYS REMEMBER, A LITTLE PREVENTIVE MAINTENANCE CAN SAVE MUCH MORE THAN IT COSTS.

INITIAL	DESCRIPTION
_____	1. Perform all checks listed on Shift and Weekly Operational Checklists.
_____	2. Lubricate all grease fittings (see Lubrication Chart).
_____	3. Lubricate all steering linkages and steering pivot points.
_____	4. Lubricate deck extension roller surfaces (if so equipped).
_____	5. Inspect condition of hydraulic fluid in the reservoir. Oil should have a clear amber color.
_____	6. Follow engine service requirements. Refer to the Engine Maintenance Manual supplied with your machine.

ADDITIONAL MAINTENANCE REQUIREMENTS FOR SEVERE USAGE APPLICATIONS

INITIAL	DESCRIPTION
_____	7. Follow instructions for servicing engine when used severely. Refer to the Engine Maintenance Manual supplied with your machine.

SEMI - ANNUAL OPERATIONAL CHECKLIST

All checks must be completed before operation of the Simon FALCON.

DATE _____ **INSPECTED BY** _____

MODEL NUMBER _____ **SERIAL NUMBER** _____

GENERAL INFORMATION

1. Keep inspection records up-to-date.
2. Record and report all discrepancies to your supervisor.
3. A dirty machine cannot be properly inspected.
   Keep your Simon FALCON clean!!

⚠WARNING

THIS CHECKLIST MUST BE USED AT SIX MONTH INTERVALS OR EVERY 500 HOURS, WHICHEVER IS SOONER. FAILURE TO DO SO COULD ENDANGER THE LIFE OF THE OPERATOR. ALWAYS REMEMBER, A LITTLE PREVENTIVE MAINTENANCE CAN SAVE MUCH MORE THAN IT COSTS.

INITIAL	DESCRIPTION
_____	1. Perform all checks listed on Shift, Weekly and Monthly Operational Checklist.
_____	2. Have hydraulic fluid sample analyzed at a test laboratory. Comply with test results and recommendations to ensure long, trouble free operation.

IMPORTANT: If hydraulic fluid has been regularly maintained, it should only require changing once every year, depending on maintenance, temperature, application, duty cycle, and atmospheric conditions.

_____	3. Check tightness of platform frame and linkage pins and overall platform stability.
_____	4. Check the electrical mounting and hardware connections for security.
_____	5. Replace return filter element.
_____	6. Follow engine service requirements. Refer to the Engine Maintenance Manual supplied with your machine.

ADDITIONAL MAINTENANCE REQUIREMENTS FOR SEVERE USAGE APPLICATIONS

INITIAL	DESCRIPTION
_____	7. Follow instructions for servicing engine when used severely. Refer to the Engine Maintenance Manual supplied with your machine.

INDEX

Index

B

Battery 3-3
Battery Maintenance 3-3
Battery Preventive Maintenance 3-4
Battery Replacement 3-4
Boom Assembly 4-11
Boom Components x
Boom Disassembly 4-10
Boom Pivot Pin and Bushing Replacement 4-12
Brake Assembly 4-7
Brake Disassembly 4-4
Brake Release Pump and Valve 2-7

C

Chassis Components viii
Checklist, Monthly Operational 6-11
Checklist, Semi-Annual Operational 6-12
Checklist, Shift Operational 6-8
Checklist, Weekly Operational 6-10

D

Descent Alarm (Optional) 3-5
Drive/ Steer System 2-6

E

Electrical System 3-3
Emergency Drive 1-6
Emergency Lowering 1-6
Emergency Procedures 1-7
Emergency Stop Button 3-5
Emergency System and Procedures 1-6

F

Fork Lifting the Falcon Lift 1-4

H

Hoses and Cables 4-4
Hydraulic Drive Motor 2-7, 4-4
Hydraulic Fluid 2-3
Hydraulic Fluid Analysis 2-3
Hydraulic Fluid Handling Precautions 2-3
Hydraulic Fluid Recommendations 2-3
Hydraulic Fluid Reservoir Assembly 2-6
Hydraulic Pump 2-6
Hydraulic System Components 2-6
Hydraulic System Flushing Procedure 2-4
Hydraulic System Functional Description 2-5

I

Introduction iv

L

Lift Cylinder 2-8, 4-8
Lift Cylinder Holding Valve Replacement 4-12
Lift Cylinder Removal 4-8
Lift Cylinder Replacement 4-8
Lift Cylinder Seal Replacement 4-9
Lift System 2-8
Lubrication Chart xii
Lubrication Diagram xiii

M

Machine Specifications vi
Maintenance 6-3
Maintenance Tips, General 6-3
Mechanical Components 4-3
Movement Alarm (Optional) 3-4
Moving the Falcon Series Lift 1-3

P

Platform Components xi
Primary Machine Components vii

R

Relay 3-5
Return Filter 2-6

S

Service, Annual 6-6
Service, Four Year Interval 6-7
Servicing, Routine 6-4
Steer Cylinder 2-7
Steer Cylinder Seal Replacement 4-4

T

Tilt Alarm Adjustment 3-5
Tilt Alarm (Optional) 3-4
Tilt Alarm Test 3-4
Tires 4-3
Tires, Changing 4-3
Transporting the Unit 1-3
Truck Transport of the Falcon Lift 1-4

Index (Continued)

U

Undercarriage 4-3
Undercarriage Components ix
Unloading Procedures 1-5

V

Valve, Brake Flow Control 2-7
Valve, Directional Drive 2-7
Valve, Drive Proportional 2-7
Valve, Emergency (Manual) Lowering 2-8
Valve, Flow Control 2-8
Valve, Flow Divider 2-7
Valve, Freewheel 2-7
Valve, Lift 2-8
Valve, Lift Holding (Check Valve) 2-8
Valve, Loop 2-6
Valve, Loop Pressure Relief 2-6
Valve, Motion Control 2-7
Valve, Pressure Reducing 2-7
Valve, Steer 2-7
Valve, Unloading 2-6
Valve, Unloading Pressure Relief 2-6
Velocity Fuse 2-8

W

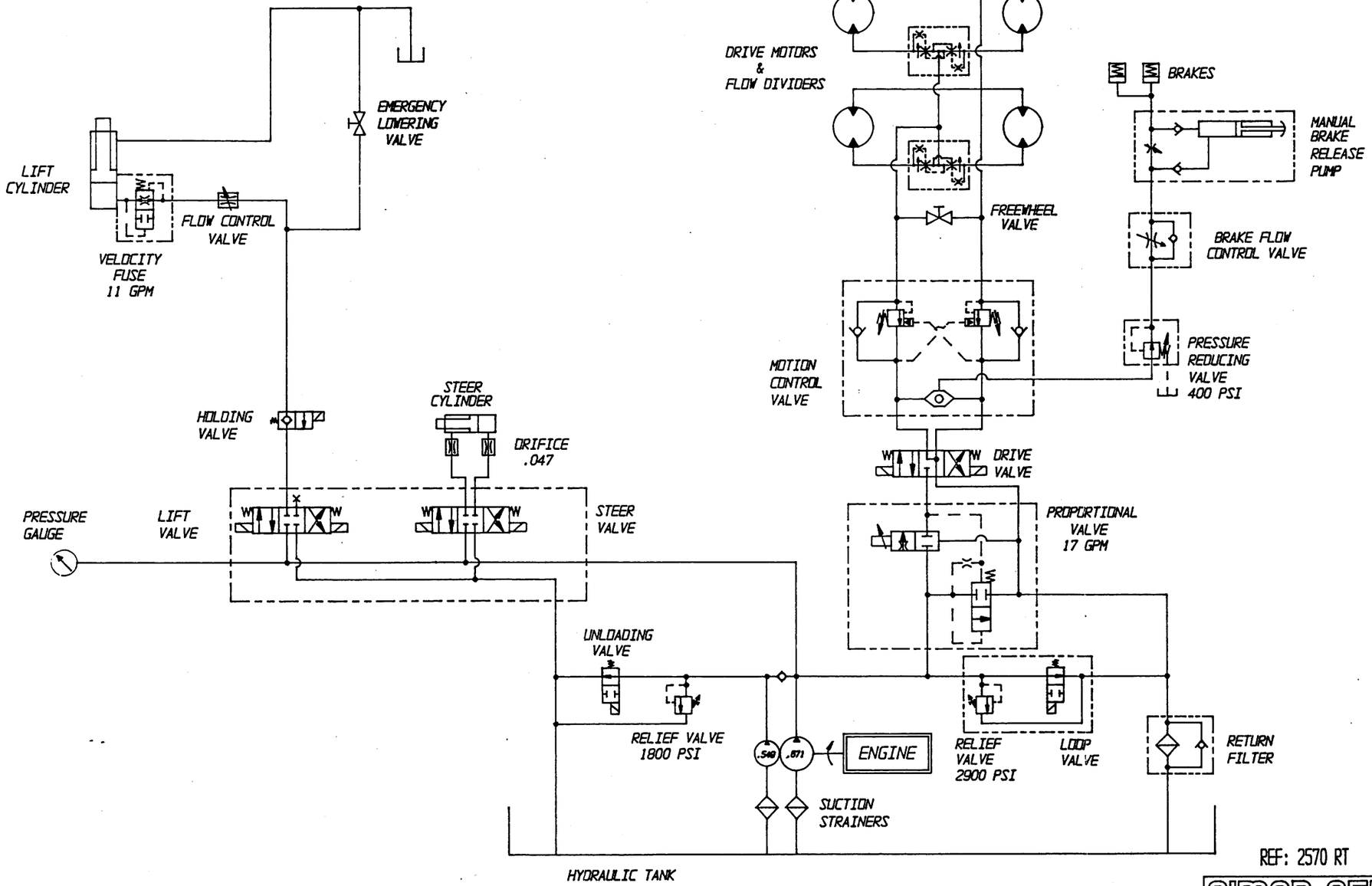
Wheels and Lug Nuts 4-4

APPENDIX

Table of Contents, Appendix

Hydraulic Schematic C-2350810 ..... A-3
Wiring Diagram Ground Box (Onan Dual Fuel) D-2350750 ..... A-5
Wiring Diagram Ground Box (Kubota Gas) D-2350760 ..... A-7
Electrical Schematic Kubota Dual Fuel D-2229200 ..... A-9
Electrical Schematic Kubota D722 European Std SCS-232453-0 .. A-11
Wiring Diagram Kubota Ground Control Box A-13
Wiring Diagram Kubota Platform Control Box A-15
Wiring Diagram Kubota Dual Fuel A-17
Wiring Diagram Kubota, Valve A-19
Wiring Diagram Onan Dual Fuel A-21
Wiring Diagram Kubota, Engine Retrofit SCS-2232620 ..... A-23
Wiring Diagram Kubota, WG750 Gas/ Dual Fuel SBS-2231920 ... A-25
Wiring Diagram Kubota, Hydraulic Valves SBS-2232080 ..... A-27

APPENDIX

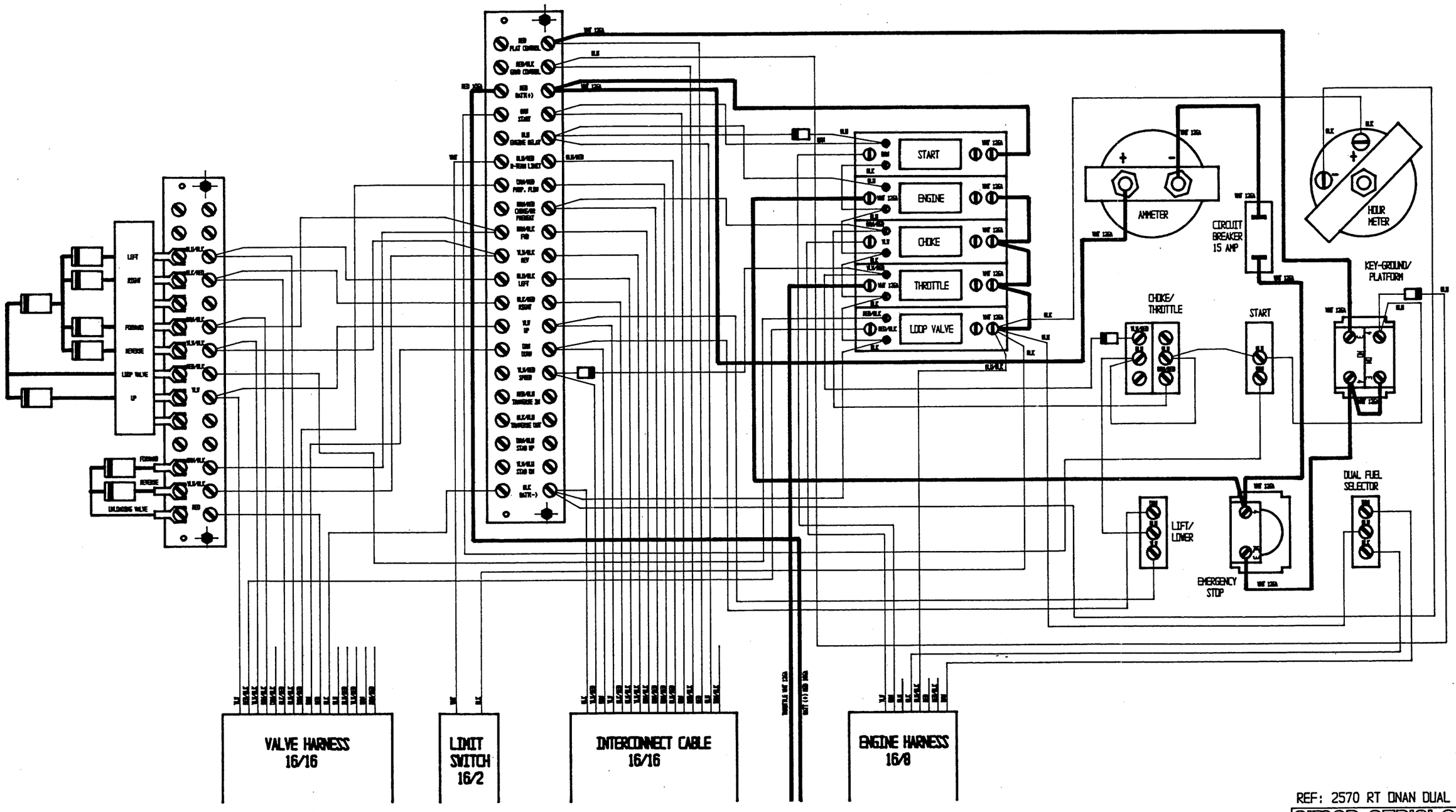


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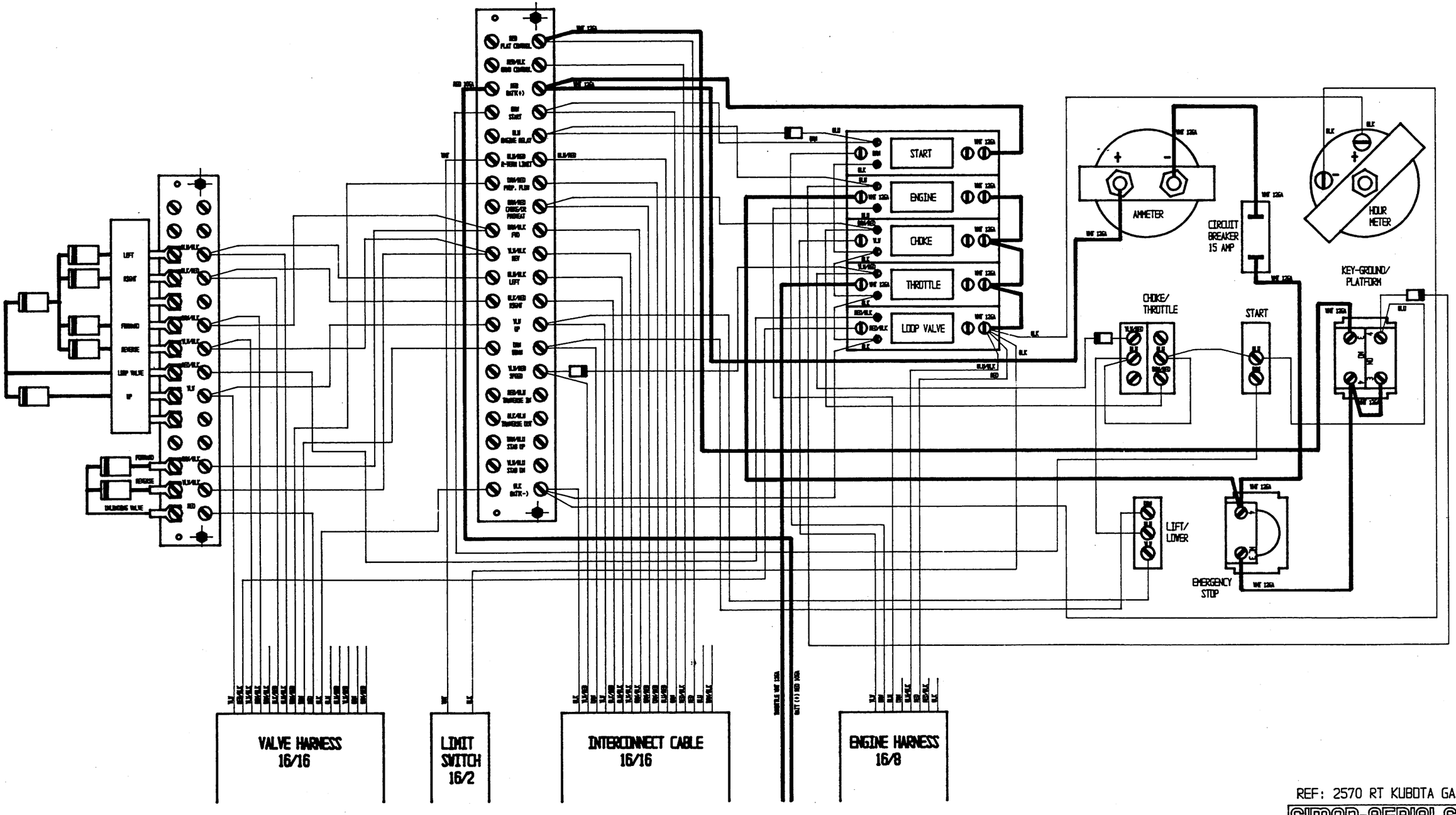
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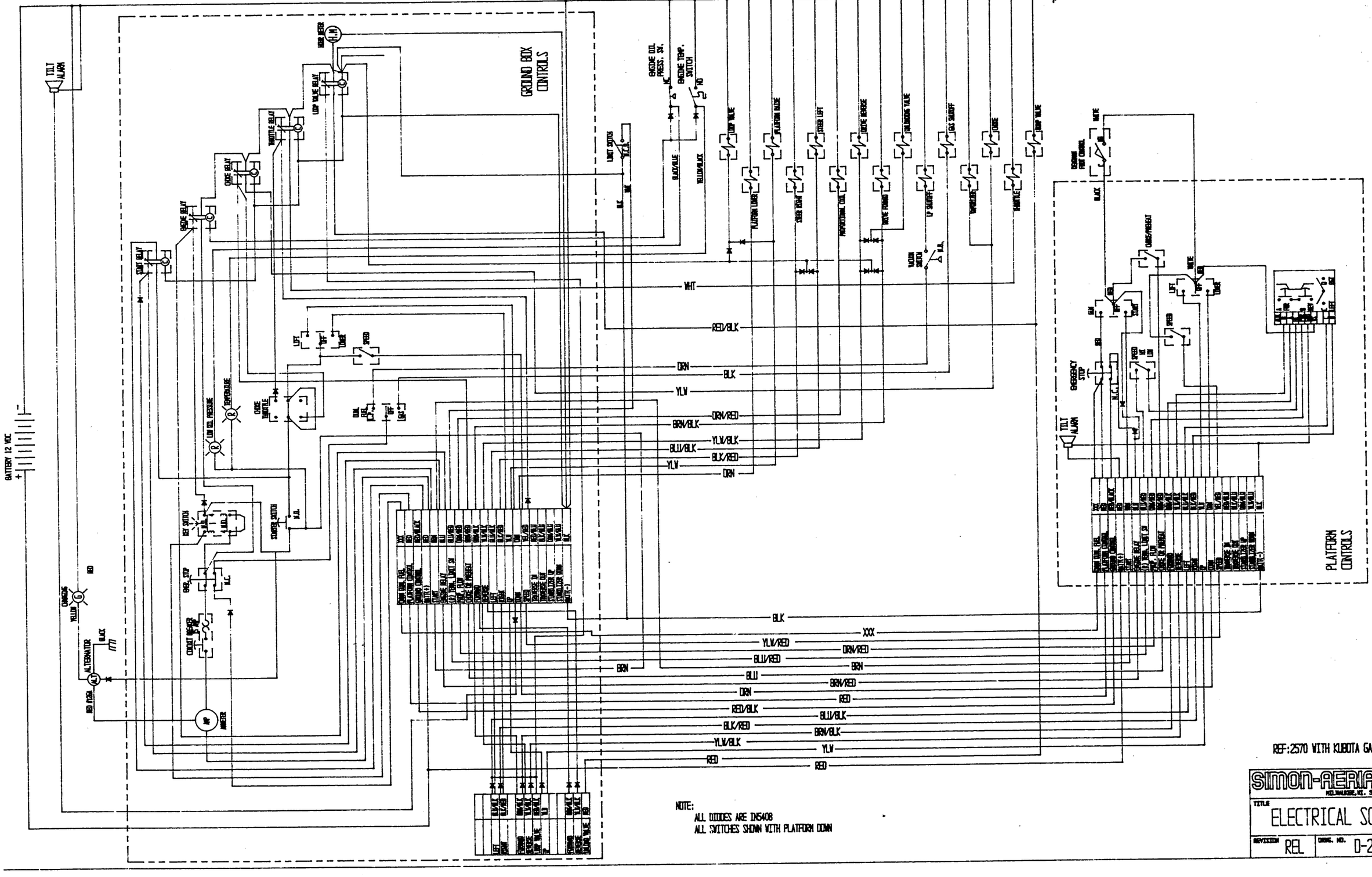
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REVISION	A	DRWG. NO. D-2350750

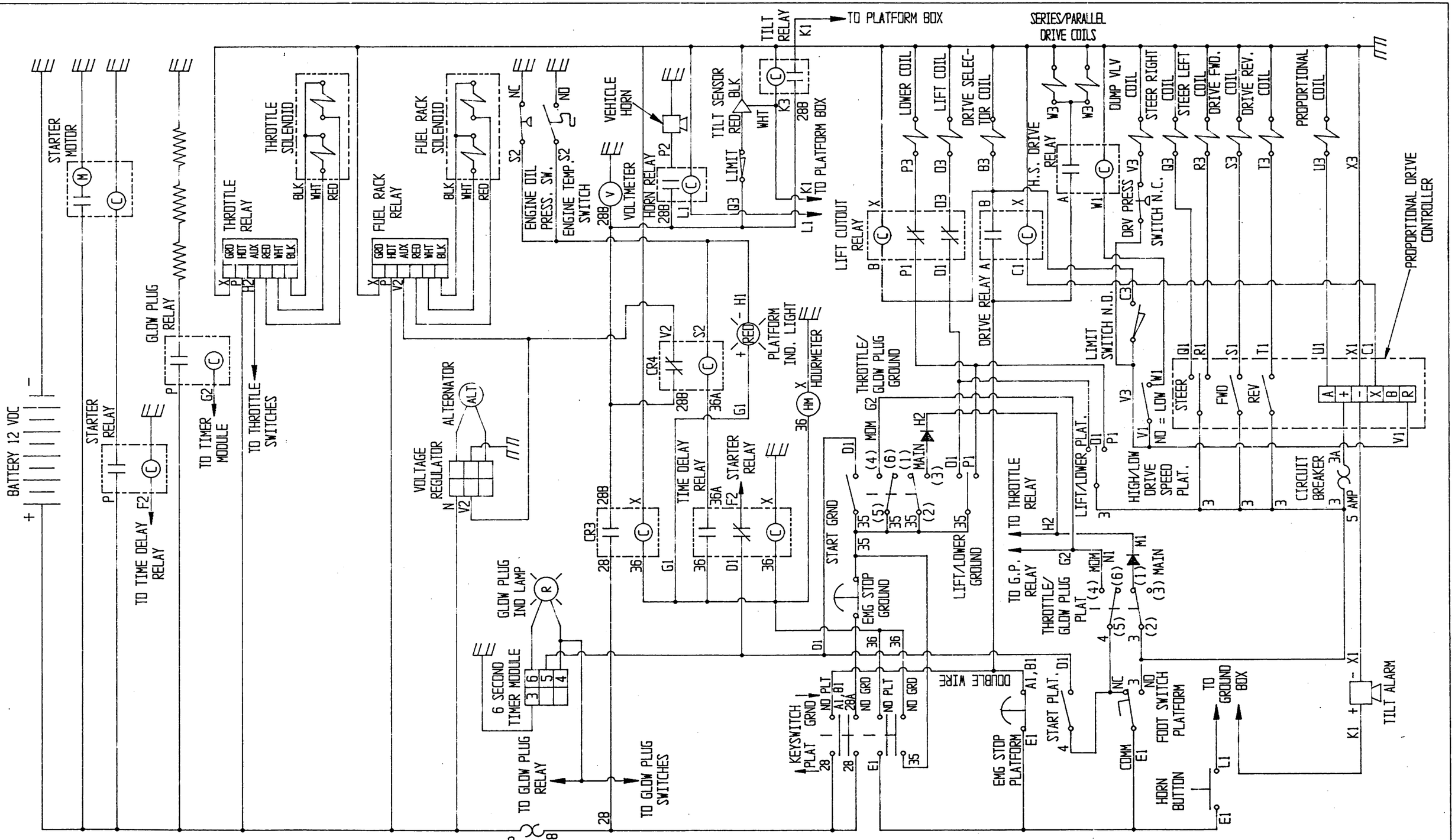


REF: 2570 RT KUBOTA GAS

SIMON-AERIALS INC.
MILWAUKEE, WI. 53224

TITLE	
WIRING DIAGRAM GROUND BOX	
REVISION A	DRWG. NO. D-2350760


GROUND BOX CONTROLS
PLATFORM CONTROLS
BATTERY 12 VDC
TILT ALARM
HORN
HORN RELAY
LOOP VALVE RELAY
THROTTLE RELAY
CHOKE RELAY
ENGINE RELAY
START RELAY
ENGINE OIL PRESS. SW.
ENGINE TEMP. SWITCH
LIMIT SWITCH
LOOP VALVE
PLATFORM LEVEL
STEER LEFT
STEER RIGHT
PROPORTIONAL COIL
BOOM RETRACT
BOOM EXTEND
SOLENOID VALVE
LP SHUTOFF
GAS SHUTOFF
THROTTLE
CHOKE
LOW OIL PRESSURE
TEMPERATURE
CHOKE THROTTLE
DUAL FUEL
LIFT
OFF
SPEED
DRAIN
KEY SWITCH
STARTER SWITCH
EMERGENCY STOP
CIRCUIT BREAKER
ALTERNATOR
CHARGING
YELLOW
BLACK
RED
RED/BLK
BLK
YLW
BRN/RED
BRN/BLK
YLW/BLK
BLU/BLK
BLK/RED
XXX
BLU/RED
BLU
GRN
GRN/YEL
NOTE:
ALL DIODES ARE IN5408
ALL SWITCHES SHOWN WITH PLATFORM DOWN
REF:2570 WITH KUBOTA GAS ENGINE
SIMON-AERIALS INC.
MILWAUKEE, WI. 53224
TITLE
ELECTRICAL SCHEMATIC
REVISION
REL
DRWG. NO.
D-2229200



WIRE HARNESS NUMBERS:

#1 HARNESS IS A 16 GA/21 COND CABLE WHICH RUNS FROM GROUND CONTROL BOX TO PLATFORM CONTROL BOX.

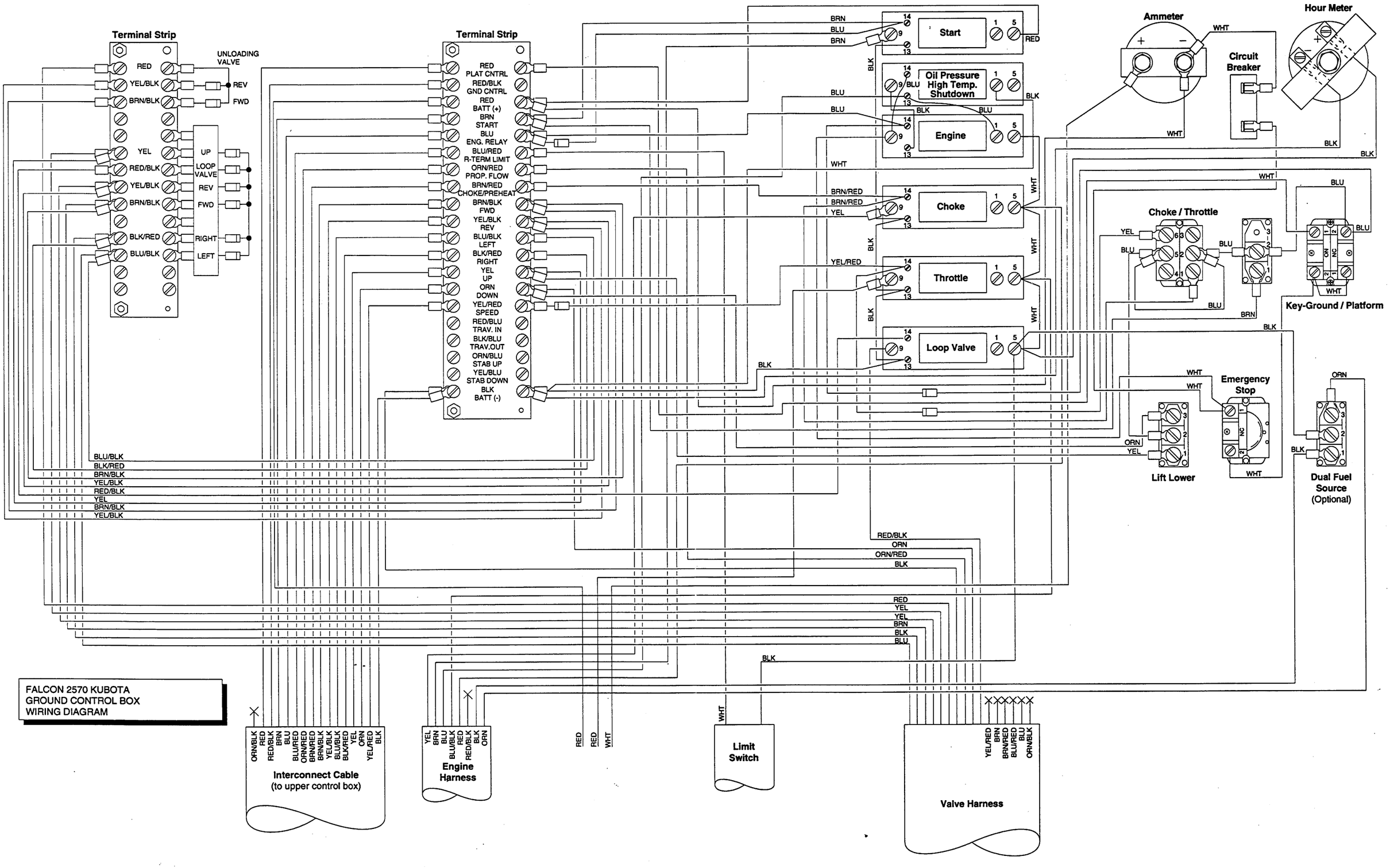
#2 HARNESS RUNS FROM GROUND CONTROL BOX TO ENGINE.

#3 HARNESS RUN FROM GROUND CONTROL BOX TO VALVE BANK AND LIFT CYLINDER.

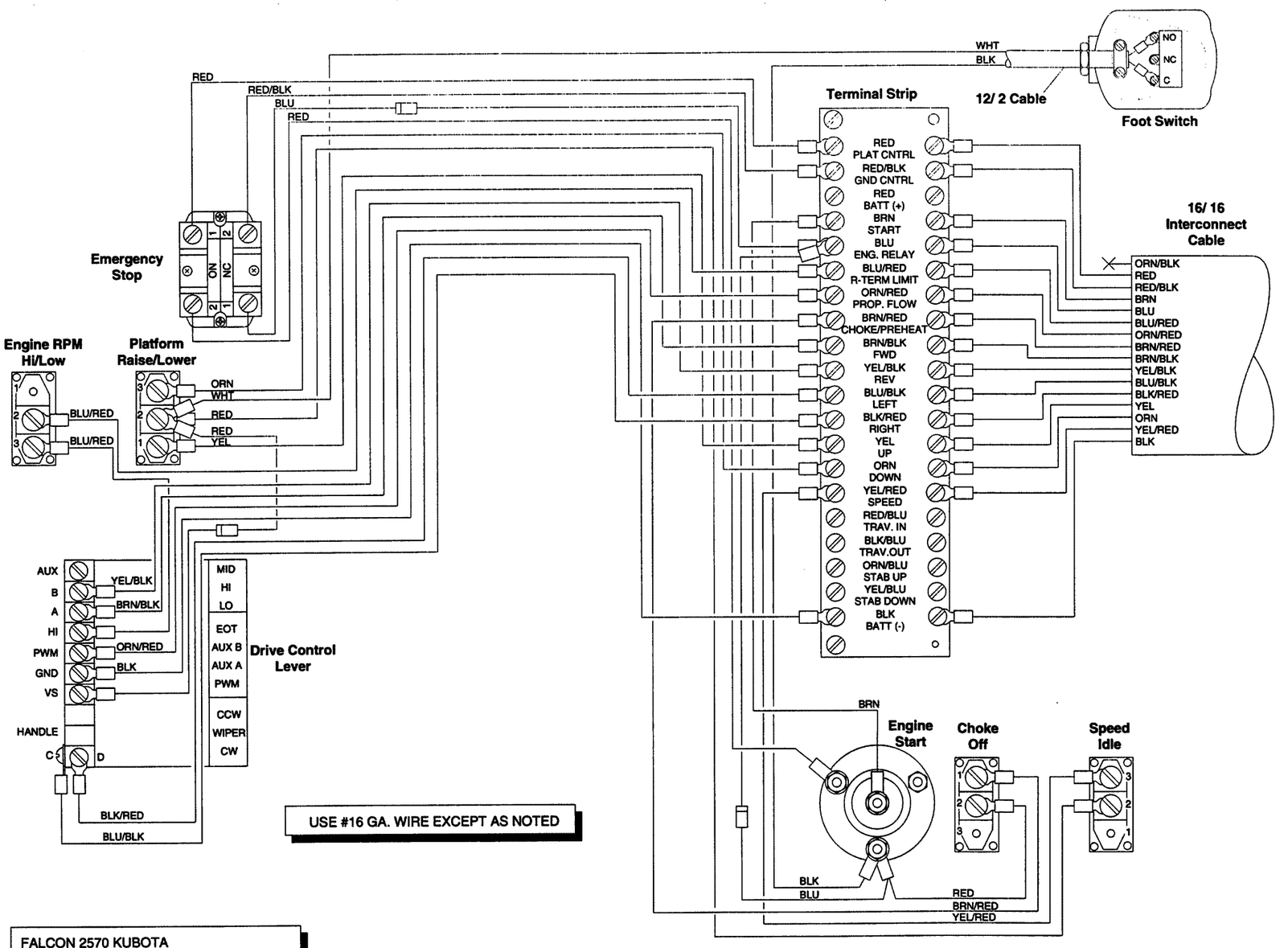
REF: KUBOTA D722 EUROPEAN STD

SIMON-AERIALS INC.
MILWAUKEE, WI. 53224

TITLE	ELECTRICAL SCHEMATIC FALCON 2570RT
REVISION	DRWG. NO. SCS-232453-0

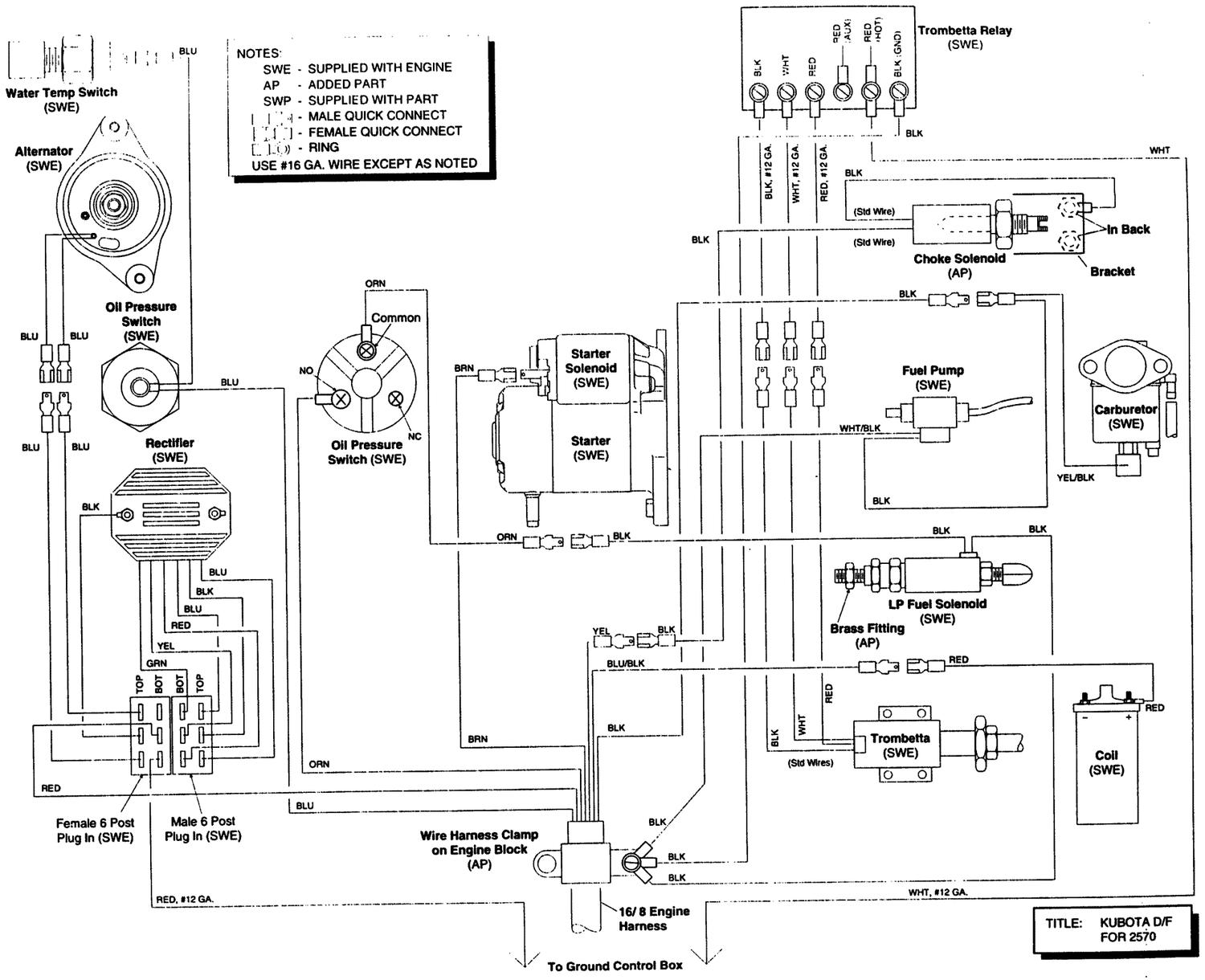


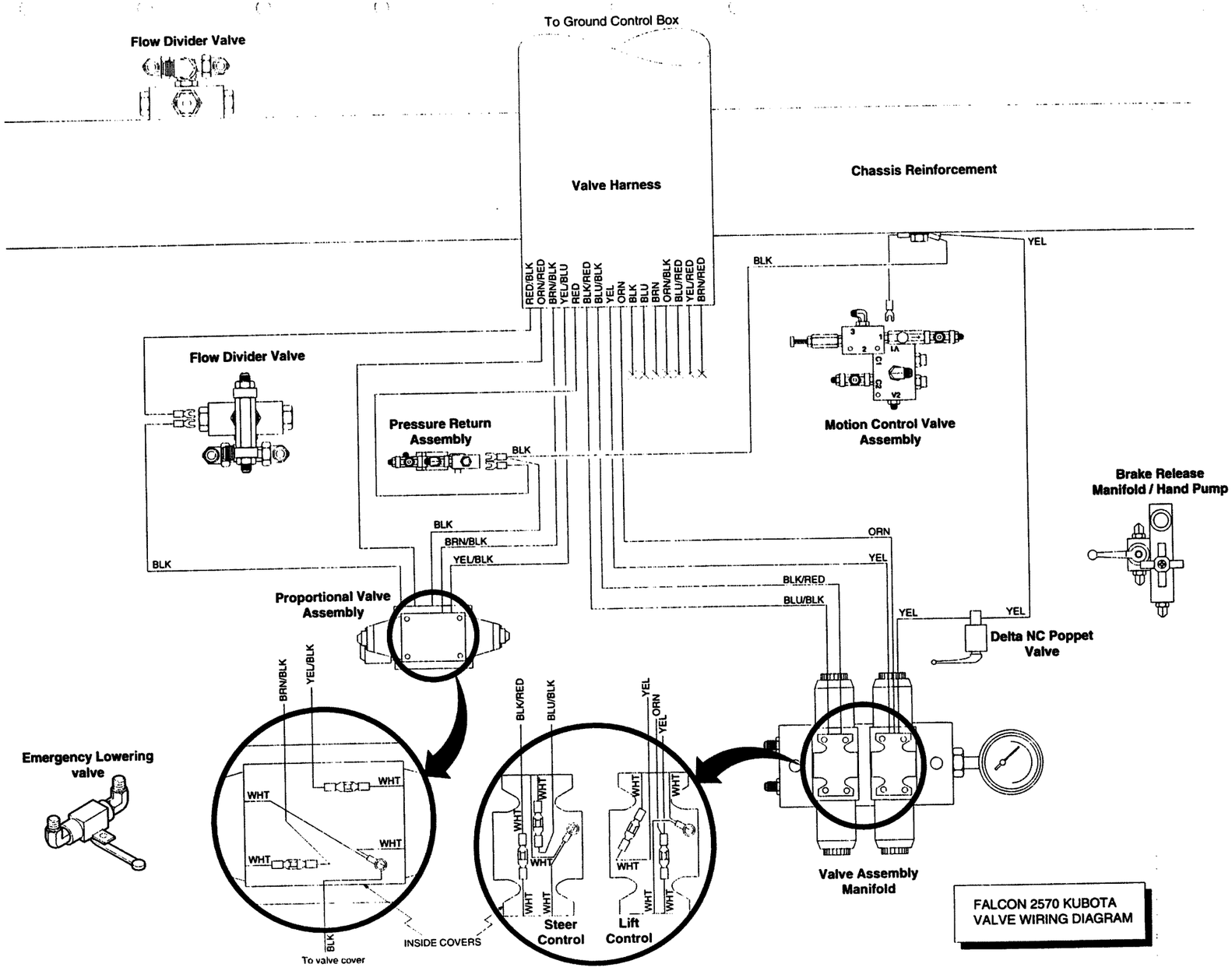
FALCON 2570 KUBOTA
GROUND CONTROL BOX
WIRING DIAGRAM

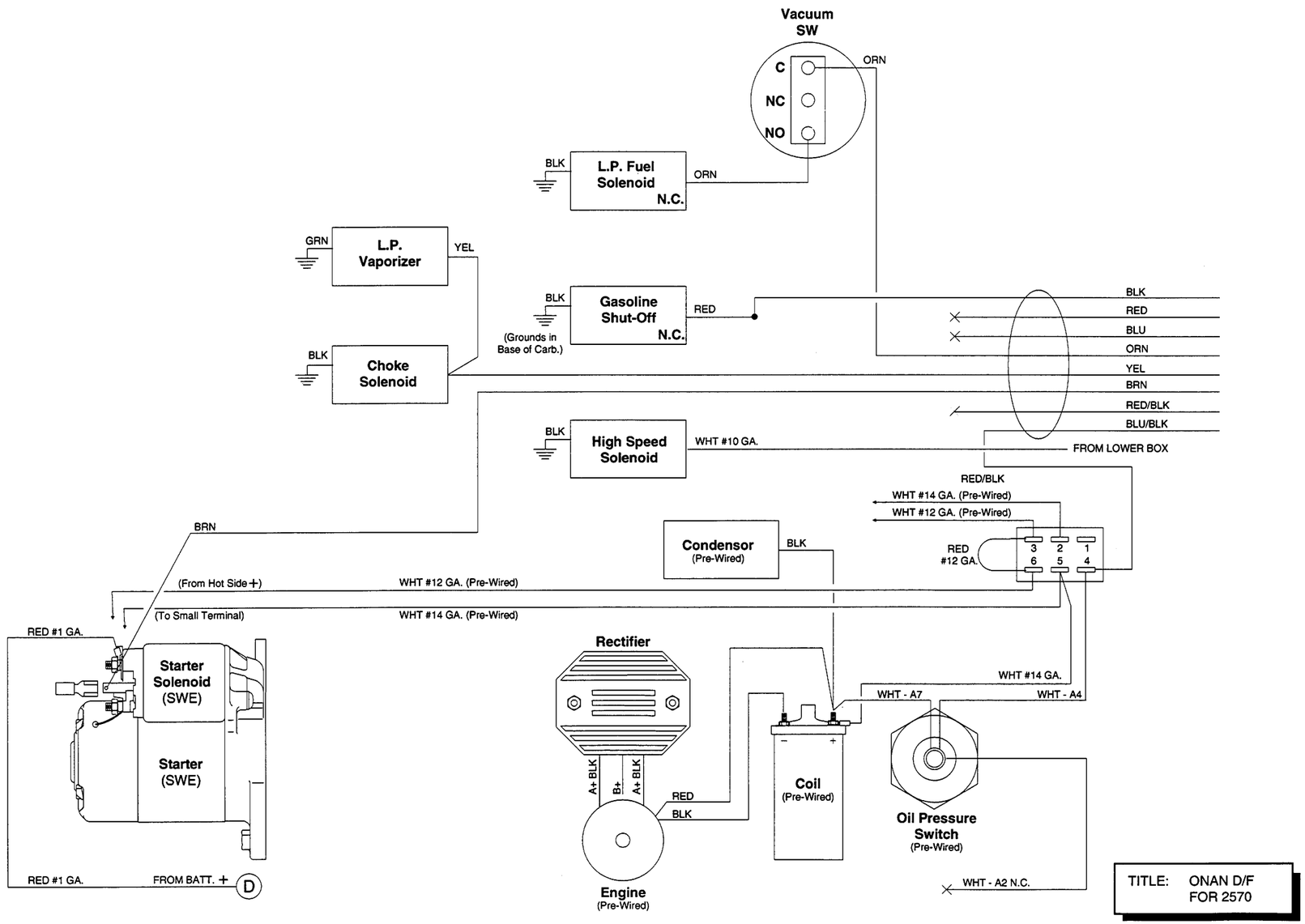


USE #16 GA. WIRE EXCEPT AS NOTED

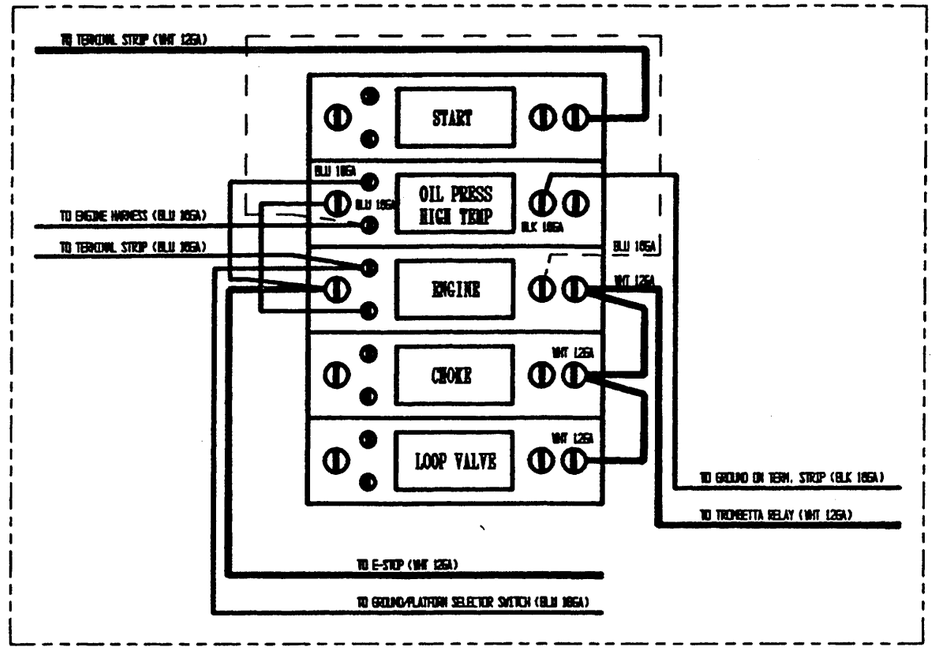
FALCON 2570 KUBOTA
PLATFORM CONTROL BOX
WIRING DIAGRAM

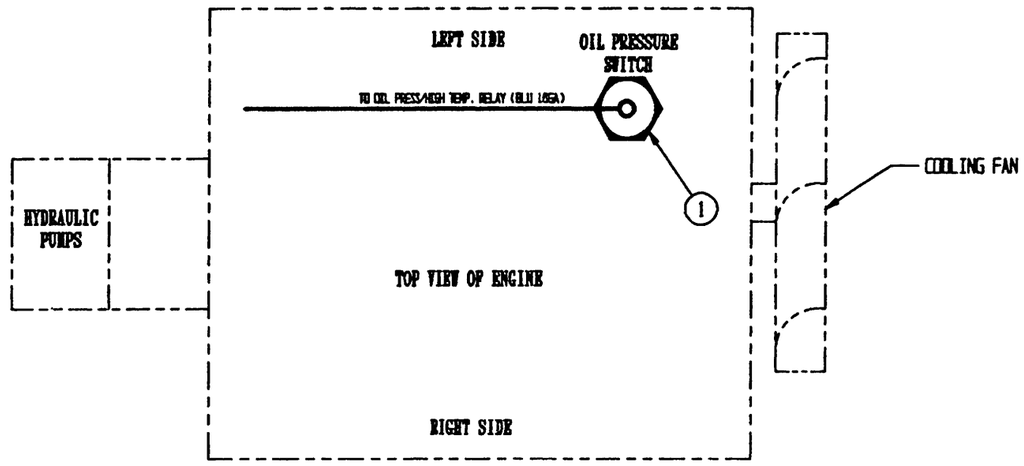

NOTES:
SWE - SUPPLIED WITH ENGINE
AP - ADDED PART
SWP - SUPPLIED WITH PART
- MALE QUICK CONNECT
- FEMALE QUICK CONNECT
- RING
USE #16 GA. WIRE EXCEPT AS NOTED
Water Temp Switch (SWE)
Alternator (SWE)
Oil Pressure Switch (SWE)
Rectifier (SWE)
Oil Pressure Switch (SWE)
Common
NO
NC
ORN
Starter Solenoid (SWE)
Starter (SWE)
BRN
Trombetta Relay (SWE)
BLK
WHT
RED
RED (AUX)
RED (HOT)
BLK (GND)
BLK, #12 GA.
WHT, #12 GA.
RED, #12 GA.
(Std Wire)
Choke Solenoid (AP)
In Back
Bracket
Fuel Pump (SWE)
WHT/BLK
Carburetor (SWE)
YEL/BLK
LP Fuel Solenoid (SWE)
Brass Fitting (AP)
BLU/BLK
YEL
GRN
TOP
BOT
Trombetta (SWE)
(Std Wires)
Coil (SWE)
Female 6 Post Plug In (SWE)
Male 6 Post Plug In (SWE)
Wire Harness Clamp on Engine Block (AP)
16/ 8 Engine Harness
To Ground Control Box
TITLE: KUBOTA D/F FOR 2570


To Ground Control Box
Flow Divider Valve
Valve Harness
Chassis Reinforcement
RED/BLK
ORN/RED
BRN/BLK
YEL/BLU
RED
BLK/RED
BLU/BLK
YEL
ORN
BLK
BLU
BRN
ORN/BLK
BLU/RED
YEL/RED
BRN/RED
BLK
YEL
Flow Divider Valve
Pressure Return Assembly
BLK
Motion Control Valve Assembly
V1
V2
Brake Release Manifold / Hand Pump
BLK
BRN/BLK
YEL/BLK
ORN
YEL
BLK/RED
BLU/BLK
YEL
YEL
Proportional Valve Assembly
Delta NC Poppet Valve
BRN/BLK
YEL/BLK
BLK/RED
BLU/BLK
YEL
ORN
YEL
Emergency Lowering valve
WHT
WHT
WHT
WHT
BLK
To valve cover
INSIDE COVERS
Steer Control
Lift Control
Valve Assembly Manifold
FALCON 2570 KUBOTA
VALVE WIRING DIAGRAM



TITLE: ONAN D/F FOR 2570





SIMON-AERIALS INC.
MILWAUKEE, WI. 53224

TITLE: WIRING DIAGRAM, ENGINE RETROFIT
2570 w/ KUBOTA WG750 DUAL FUEL

REVISION: REL

DRWG. NO.: C-2232620

WATER TEMP. SWITCH

BLU

OIL PRESSURE SWITCH

BLU

RECTIFIER

BLK

GRN

YLW

RED

BLU

BLK

BLU

BLU

BLK

BLU

CHOKE SOLENOID

BLK

N.C.

(OPTIONAL)

L.P. FUEL SOLENOID

N.C.

GASOLINE SHUTOFF

BLK

N.C.

CARBURATOR

DOT INDICATES LINE TAP

YLW/BLK

DRN

YLW

BLK

RED

BLU

BRN

BLU/BLK

RED/BLK

ENGINE HARNESS 16/8

ALTERNATOR

BLU

BLU

RED

RED

RED 10GA (TO AMP METER IN GCB)

WHT 10GA (TO ENGINE RELAY IN GCB)

YLW/RED 16GA

(TO SPEED TERM. STRIP IN GCB)

BLK 12 GA

SOLENOID

BRN

STARTER

- GND
+ HOT
+ AUX
A RED
B WHT
C BLK

TROMBETTE RELAY

TROMBETTE

HIGH SPEED SOLENOID

RED 12 GA

WHT 12 GA

BLK 12 GA

BLK/WHT

BRN

DISTRIBUTOR

(PRE-WIRED)

COIL

RED 2GA

BATTERY POSITIVE

REF: 2570 RT W/KUBOTA WG750 GAS/DF

REV	DATE	DESCRIPTION
	1-8-97	ECN-2698

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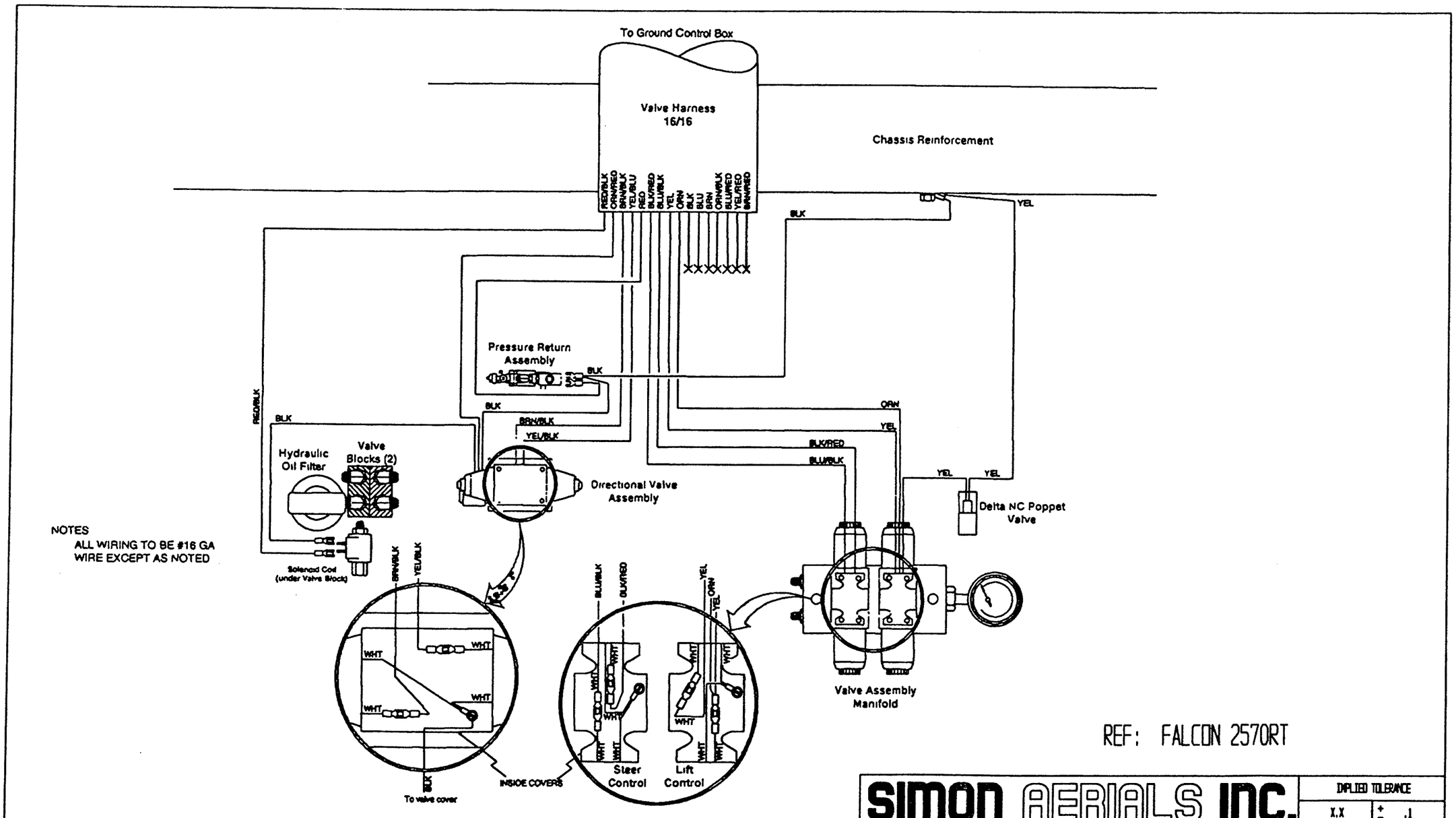
SIMON AERIALS INC.

TITLE: WIRING DIAGRAM, ENGINE

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STATE	BND	DATE	CHECKED	APPROVED	DRAWING NO.
NONE	RLN	2-6-97			B-2231920

UNLESS OTHERWISE SPECIFIED TOLERANCE	
X.X	± .1
X.XX	± .03
X.XXX	± .015
FRACTIONAL	± 1/4
ANGULAR	± 0.5 deg



NOTES
ALL WIRING TO BE #16 GA
WIRE EXCEPT AS NOTED

REF: FALCON 2570RT

REL	RLN	03-17-97	ECN-3094
REV	BY	DATE	DESCRIPTION

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SIMON AERIALS INC.
MILWAUKEE, WI. 53224

TITLE: WIRING DIAGRAM- HYDRAULIC VALVES

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NONE	RLN	03-17-97			B-2232080

UNLESS OTHERWISE SPECIFIED TOLERANCE	
X.X	± .1
X.XX	± .05
X.XXX	± .015
FRACTIONAL	± 1/8
ANGULAR	± 0.5 deg.