OPERATOR'S MANUAL

September 2004

Allmand™

TLB SERIES

TLB 220, TLB 225, TLB 325, TLB 425 ESL AND TLB 535 ESL

ALLMAND BROS. INC
P.O. BOX 888
HOLDREGE, NE 68949

PHONE: 308/995-4495, 1-800/562-1373
ALLMAND FAX: 308/995-5887
ALLMAND PARTS FAX: 308/995-4883

Allmand™ TLB SERIES

INSPECTION CHECK LIST

FOR PREPARING Allmand TLB FOR DELIVERY OR RENTAL

The **Allmand TLB** require service as well as proper operation in order to provide the performance and safety it has been designed for. Never deliver or put a machine into service with known defects or missing instructions or decals. Always instruct the customer in the proper operation and safety procedures as described in the operator's manual. Always provide the manual with the equipment for proper and safe operation.

CHECK LIST:

- Visually inspect the equipment to ensure that all instructions and decals are in place and legible.
- Inspect the hydraulic system to insure all connections are tight and secure.
- Lubricate all grease fittings with recommended grease.
- Inspect all hydraulic hose for proper routing and signs of damage.
- Check the condition of the hydraulic cylinders.
- Inspect the steering system, tie rod ends, spindles and wheel bearings regularly and tighten rod ends often.
- Check the outriggers and make sure they operate properly.
- Tighten lug nuts to 80 ft/lb (standard tractor) and to 295 ft/lb (ESL tractor) every 50 hours of operation.
- Inspect the loader and backhoe for damage and test for proper operation.
- Inspect the loader bucket stops for damage. (there should be at least 1/2" clearance between cylinder rod and bucket pin grease zerk).
- Inspect the electrical wiring for signs of damage.
- Inspect the park brake for proper holding strength.
- Inspect the tires to ensure good condition and proper inflation.
- Make sure the battery is fully charged and terminals are tight and clean. Insure the electrolyte is at the correct level.
- Check the service intervals for oil filters, fuel filter, air cleaner, engine oil and hydraulic oil.
- Check the engine oil, hydraulic oil and fuel levels.
- Start engine and check for hydraulic leaks and proper R.P.M. at full throttle.
- Check to make sure the operator's manual is with the equipment.
- Inspect the machine physically for damage and repair if necessary.

NOTE: See appropriate section of manual for scheduled maintenance intervals

- After completing the inspection checklist, operate the loader and backhoe through a complete operation cycle, following the operating instructions in the operator's manual.

WARNING

NEVER ALLOW ANYONE TO OPERATE
THE EQUIPMENT WITHOUT PROPER TRAINING!

ALWAYS READ THE INSTRUCTIONS FIRST!

INTRODUCTION

This manual provides information necessary for the safe operation of the **Allmand TLB.**

The **Allmand TLB** standard configuration is powered by a gasoline engine connected to hydrostatic pumps that drive hydraulic motors and cylinders that move the machine. Time should be taken to understand the controls and movement of this equipment.

Specific operating instructions and specifications are contained in this publication to familiarize the operator and maintenance personnel with the correct and safe procedures necessary to maintain and operate the equipment.

Take time to read this book thoroughly. If you are uncertain about any of the information presented in the manual, contact the factory by phone at **800-562-1373** or by fax at **308-995-5887** or contact your dealer, for clarification before operation.

SAFETY SYMBOLS

The purpose of the SAFETY INFORMATION SYMBOL shown below is to attract your special attention to safety related information contained in the text.

DANGER

WARNING

CAUTION

FAILURE TO UNDERSTAND AND COMPLY WITH SAFETY RELATED INFORMATIONAL INSTRUCTIONS MAY RESULT IN INJURY TO OPERATOR OR OTHERS. IF YOU DO NOT UNDERSTAND ANY PART OF THIS INFORMATION CONTACT YOUR DEALER FOR CLARIFICATION PRIOR TO OPERATING EQUIPMENT.

NOTE

The word **NOTE** is used to bring your attention to supplementary information in relation to various aspects of proper operation and maintenance.

NOTE: Keep this manual accessible during operation to provide convenient reference.

NOTE: Any reference in this manual to LEFT or RIGHT shall be determined by looking forward while sitting in the operator's seat.

SAFETY DECALS

SAFETY WARNING!

ALWAYS REPLACE ANY SAFETY AND INSTRUCTION DECALS THAT BECOME DAMAGED, PAINTED OR OTHERWISE ILLEGIBLE.

Refer to these representations of the safety warning decals used on the **Allmand TLB** to insure correct ordering if replacing becomes necessary.

090158
Cover panel-upper left

090191
Cover panel-lower right

090189
Gauge panel-right side

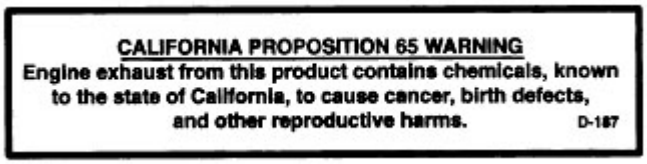
090195
Rear fender-left of seat

090197
Rear fender-right of seat

090190
ROPS-front left upright

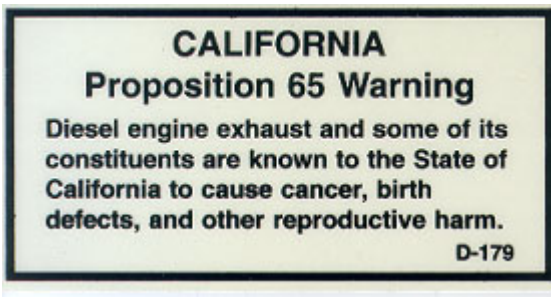
090194
ROPS-front right upright

SAFETY DECALS



090187
Gauge panel-center
Gasoline models

090147
Right Frame Rail above
Directional Pedal



090179
Gauge panel-center
Diesel models

090192
Right fender next to
fuel fill

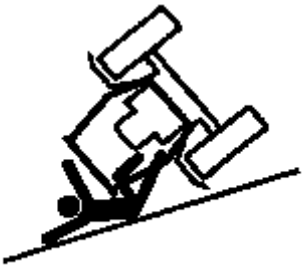
090193
Right Frame Rail ahead of
exhaust pipe

090034
Right fender next to
fuel fill

090196
Right side of throttle
control

AVOID INJURY FROM ROLLOVER ACCIDENTS!

- ALWAYS WEAR YOUR SEAT BELT WHILE OPERATING THIS MACHINE.
- DO NOT ATTEMPT TO JUMP CLEAR OF A TIPPING MACHINE. SERIOUS OR FATAL CRUSHING INJURIES WILL RESULT.
- THIS MACHINE MAY TIP OVER FASTER THAN A PERSON CAN JUMP FREE.



TO AVOID ROLLOVERS

- BE CAREFUL WHEN OPERATING ON A SLOPE.
- AVOID SHARP TURNS AT HIGH SPEED.
- BALANCE LOADS SO WEIGHT IS EVENLY DISTRIBUTED AND LOAD IS STABLE.
- CARRY LOADS CLOSE TO THE GROUND TO AID VISIBILITY AND LOWER CENTER OF GRAVITY.
- REDUCE SPEED BEORE TURNING OR SWINGING LOAD.

DO NOT OVERLOAD: KNOW CAPACITY OF MACHINE. BE CARE FUL WHEN OPERATION AT THE EDGE OF AN EXCAVATION, TRENCH, DROP-OFF, AND LOADING OR UNLOADING FROM A TRAILER.

AVOID INJURY FROM BACK OVER ACCIDENTS!

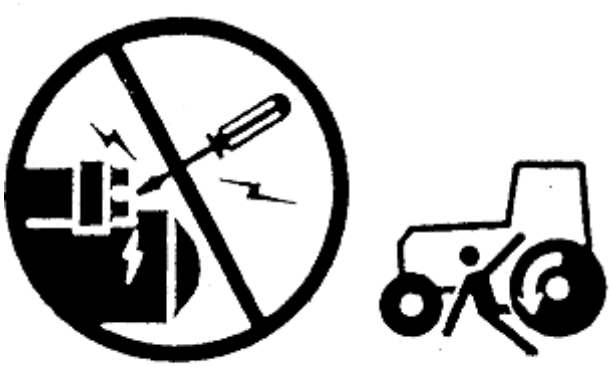
- BEFORE MOVING MACHINE, BE SURE ALL PERSONS ARE CLEAR OF AREA.
- ALWAYS BE ALERT FOR BYSTANDERS MOVING INTO THE WORK AREA. SIGNAL TO WARN BYSTANDERS BEFORE MOVING MACHINE.
- WHEN USING A SIGNAL PERSON, KEEP PERSON IN VIEW AT ALL TIMES. BE SURE SIGNAL PERSON IS CLEAR BEFORE BACKING UP.

TO AVOID BACK OVER ACCIDENTS:

- Always look around before you back up. Be sure that everyone is clear of machine.
- Use a signal person when backing up if view is obstructed. Always keep signal person in view.
- Learn the meaning of all flags, signs and markings used on the job and who has the responsibility for signaling.
- Dust, heavy rain, fog, etc., can reduce visibility. As visibility decreases, reduce speed and use proper lighting.

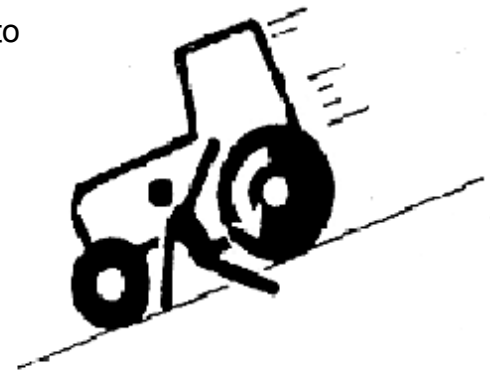
PREVENT MACHINE RUNAWAY

- Avoid possible injury or death from machine runaway**.**
- Do not start engine by shorting across starter terminals.
- Never start engine while standing on the ground. Start engine only from operator's seat with transmission in neutral and park brake engaged.



AVOID INJURY FROM ROLLAWAY ACCIDENTS

- To prevent rollaway, always make sure machine is properly secured before leaving operator's seat.
- Death or serious injury may result if you attempt to mount or stop a moving machine.



- **TO AVOID ROLLAWAY**:
- Park machine on level ground.
- Engage park brake.
- Lower all equipment to ground.
- Stop the engine.
- Block the wheels if you park on a grade and position machine to prevent rolling.

USE SEAT BELT PROPERLY

- Use seat belt when operating machine to reduce the chance of injury from an accident such as a rollover.
- It is important to use the seat belt on ROPS equipped machines to minimize the chance of injury from an accident such as a rollover.
- Keep the seat belt in good condition.
- Carefully examine buckle, webbing and attaching hardware.
- Be sure that attaching hardware is in place.

REPLACE THE SEAT BELT IF IT DOES NOT OPERATE PROPERLY, IS DAMAGED, WORN OR DETERIORATED IN ANY WAY.

USE HANDHOLDS AND STEPS

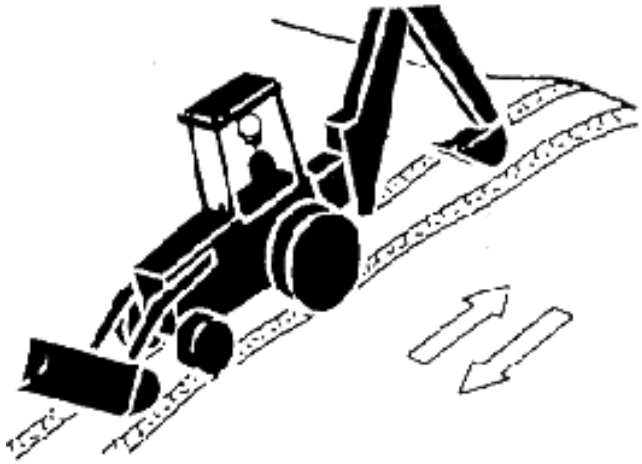
- **DO NOT** mount tractor from the right (drive pedal) side.
- Falling is a major cause of personal injury.
- Always face the machine and use a three-point contact when mounting or dismounting the machine.
- Never jump either on or off the machine.
- Never mount or dismount a moving machine.
- Be careful of slippery conditions on platforms, steps and handrails when mounting or dismounting the machine.

DRIVE MACHINE SAFELY

AVOID DRIVING ON HILLSIDES OR STEEP SLOPES

- Set backhoe boom lock and swing lock to center the boom before driving.
- This is a potential rollover hazard and could result in a serious injury or possibly death.

- **If you must drive on steep hillsides**, moving the backhoe to the uphill side of the machine may make the machine more stable, depending upon working conditions.

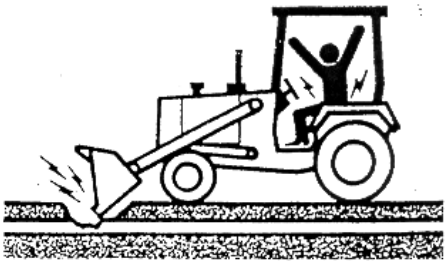


DRIVE CAREFULLY:
- On slopes (avoid if at all possible)
- Where space is limited
- Over rough ground, curbs and tracks
- Near a ditch or excavation ***ALWAYS***!

FOR TRAVELING:
- Carry loader bucket low.
- Never carry passengers.

OPERATE BACKHOE SAFELY

Before digging:
- Check location of electrical cables
- Gas lines
- Water and sewer lines
- Avoid accidental machine movement

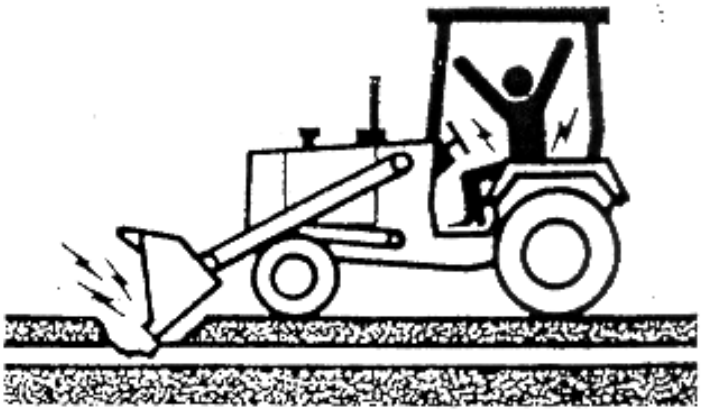


Before changing seats to operate the backhoe:

- Engage park brake.
- Lower loader bucket to the ground.

After changing positions to the rear backhoe seat:

- Lower stabilizers to the ground.
- Lift rear tires off the ground so as to remove the weight from the tires.



Otherwise, from the loader operator seat:

- Raise loader bucket and stabilizers
- Drive machine forward to change position
- Properly secure machine after each move.
- **DO NOT** dig under stabilizers!
- Stabilizers must be set on firm surfaces. Be alert to possible machine movement when raising stabilizers and loader bucket.
- Avoid swinging bucket to the downhill side of the machine when digging on a slope.
- Dump soil on the uphill side. If not, the machine has a possibility for rollover.
- Move boom slowly when raising loaded bucket to full height.
- Clear all persons from area of operation and machine movement.

HANDLE CHEMICAL PRODUCTS SAFELY

- Direct exposure to hazardous chemicals can cause serious injury. Potentially hazardous chemicals used with **Allmand TLB** equipment include such items as lubricants, coolants, paints and adhesives.
- A Material Safety Data Sheet (MSDS) provides specific details on chemical products, physical and/or health hazards, safety procedures and emergency response techniques.
- Check the MSDS before you start any job using a hazardous chemical.
- Follow recommended procedures and only use recommended and approved equipment.

WARN OTHERS OF SERVICE WORK

- Unexpected machine movement can cause serious injury or even death.
- Before performing any work on the machine, attach a "**DO NOT OPERATE"** tag to the steering wheel.

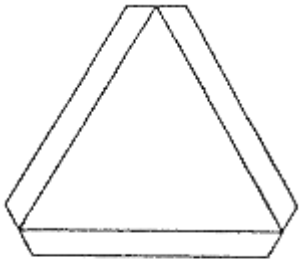
USE SAFETY LIGHTS AND DEVICES

- Install and use all safety lights and devices necessary to assure safe operation and local compliance.
- Keep all safety items in good condition. Replace any missing or damaged parts immediately.

THE Allmand TLB SHOULD NOT BE DRIVEN ON PUBLIC ROADS FOR ANY REASON.

- Trailer to job sites or from one work location to another.
- Slow moving vehicles, such as the **Allmand TLB**, present a hazard that, if involved in an accident, could result in serious injury or possibly death.
- A few minutes spent loading and trailering the **Allmand TLB** may save some one's life.

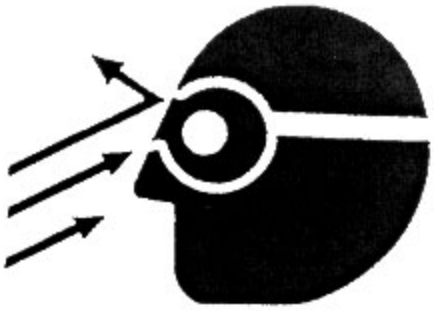
THAT LIFE MIGHT BE YOURS!



SLOW MOVING VEHICLE

PROTECT AGAINST FLYING DEBRIS

- Wear safety glasses or goggles to protect from flying debris.



WEAR PROTECTIVE CLOTHING

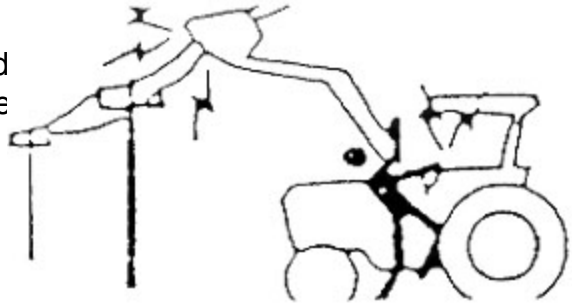
- Wear close fitting clothing and safety equipment appro priate to the job.
- Operating equipment safely requires the full attention o the operator. Do not wear radio or music headphones while operating machine.

PROTECT AGAINST NOISE

- Prolonged exposure to loud noise can cause impairment or loss of hearing.
- Wear a suitable hearing protective device such as earmuffs or earplugs to protect against objectionable or uncomfortable loud noises.

AVOID POWER LINES

- Keep away from power lines. Serious injury or death may result. Never move any part of the machine or load closer to power lines than 3 m. (10 ft.) plus twice the line insulator length.

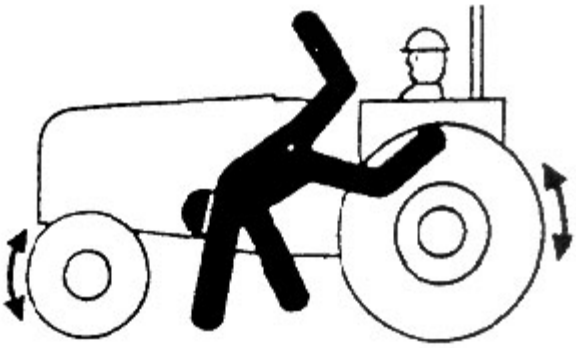


BEWARE OF EXHAUST FUMES

- Prevent asphyxiation. Engine exhaust fumes can cause sickness or death.
- If you must operate in a building, be sure there is adequate ventilation. Either use an exhaust pipe extension to remove the exhaust fumes or open doors and windows to bring in enough outside air into the area.

KEEP RIDERS OFF MACHINE

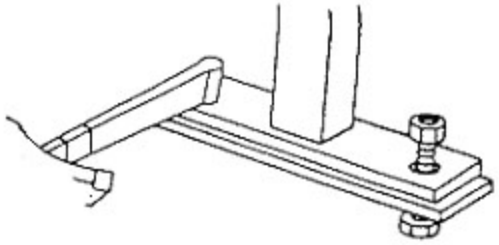
- Only allow the operator on the machine. Keep riders off.
- Riders on machine are subject to injury such as being struck by foreign objects and being thrown off of the machine.
- Riders also obstruct the operator's view, resulting in the machine being operated in an unsafe manner.



HANDLE FUEL SAFELY - AVOID FIRES

- Handle fuel with care, it is highly flammable. Do not refuel machine while smoking or when near open flame or sparks.
- Always stop engine before refueling machine. Do not fill fuel tank inside any building structure. Always attempt to refuel in the out of doors.

KEEP ROPS INSTALLED PROPERLY



Make certain all parts are reinstalled correctly if the roll-over protective structure (ROPS) has been loosened or removed for any reason.

TORQUE ALL ½" MOUNTING BOLTS TO 37 lb./ft.

⚠ CAUTION

This Roll Over Protective Structure (ROPS) has been certified to industry and/or government standards. Any damage or alteration to ROPS, mounting hardware, or seat belt voids the certification and will reduce or eliminate protection for the operator in the event of a rollover. The ROPS, mounting hardware, (proper torque-37 lb./ft**)** and seat belt should be checked after the first 100 hours of machine operation and every 500 hours thereafter for any evidence of damage, wear, or cracks. In the event of damage or alteration, the ROPS must be replaced prior to further operation of the machine

Allmand TLB

GENERAL

The Allmand **Allmand TLB** heavy-duty, compact tractor-loader-backhoe is designed for its size and maneuverability to excavate materials in areas that larger tractor-loader-backhoes can not access. The front end loader is generally used for excavating, leveling, and for back filling trenches and other types of excavations. The backhoe is generally used for excavation of soil to form a trench or opening, depending upon operator's needs, in areas where limited space is a factor.

The base unit consists of a chassis, engine, hydrostatic transmission drive system, tires and wheels, steering system, front end loader, hydraulic system, backhoe and Roll Over Protective Structure (ROPS).

CHASSIS WITH INTEGRAL HYDRAULIC RESERVOIR

The chassis frame is constructed of formed steel and all components are welded in rigid fixtures to insure consistency of each part produced.

The hydraulic reservoir consists of the left and right vertical frame posts and the upper and lower cross members. Provisions have been made in the reservoir for a 100 mesh suction strainer, a 1-1/2" oil fill opening, Two 1/2" NPT magnetic drain plugs and oil level sight gauge. The reservoir accomodates 10 gallons of hydraulic fluid and has room for the oil to expand.

The chassis includes mounting provisions for solid rear axle and drive plate, as well as the oscillating front axle.

The chassis also includes mounting provisions for a certified ROPS which is attached with specified hardware. The ROPS can be removed and replaced without affecting certification. Refer to the proper section of this manual for instructions on this operation.

HYDROSTATIC TRANSMISSION DRIVE SYSTEM

The machine is driven by an infinitely variable hydrostatic transmission consisting of a variable displacement pump and a fixed displacement motor. The pump unit includes a manual control valve.

Control of the variable piston displacement pump is the key to controlling vehicle speed. Prime mover horsepower is transmitted by the pump when the operator moves the directional control pedal. When the variable piston pump swash plate is tilted, a positive stroke to the piston is created.

This in turn, at any given input speed, produces a certain flow from the pump. This flow is transferred through high pressure lines to the motor. The ratio of the volume of flow from the pump to the fixed displacement of the motor will determine the speed of the motor output shaft.

Speed of the output shaft is controlled by adjusting the displacement flow of the transmission. Load (working pressure) is determined by the external conditions (grade, ground conditions, etc.) and this establishes the demand on the system.

The motor drives a solid drive coupler bolted directly to a limited slip differential. Both the motor and differential are rigid mounted in the frame.

The park brake is a 1" band type brake which, when activated by the lever mechanism, restrains a machined steel drum mounted between the drive motor and the rear differential. The brake is activated by an adjustable hand lever conveniently located to the right of the operators seat.

POWER STEERING SYSTEM

The power steering is fully fluid linked. It consists of a manually operated load sensing steering control valve and a steering cylinder that is attached to the left and right steering arms. Fluid pressure is supplied from the load sensing gear pump to the steering control valve and is directed to the appropriate side of the steering cylinder. The steering control valve is a non-load reaction design which holds the axle position whenever the operator releases the steering wheel.

HYDRAULIC SYSTEM

Hydraulic oil is contained in the reservoir as described in the "**Chassis With Integral Reservoir**" section. Total system capacity is 10 gallons. Oil is drawn from the reservoir through a 100 mesh suction strainer. A tee fitting allows oil to supply the charge pump in the hydrostatic transmission as well as the auxiliary circuit gear pump. The hydrostatic transmission and auxiliary circuit share a common reservoir.

The hydrostatic drive system offers infinitely variable control of speed, both forward and reverse. The operator controls the hydrostatic transmission with a forward and reverse foot pedal. The auxiliary circuit supplies oil to the steering control valve as required and to the loader and backhoe.

Oil is returned into the left reservoir upright through a return filter. A stand pipe internal in the reservoir returns oil below the reservoir level.

LOADER

The loader assembly is manufactured to handle most excavation and landscaping projects. Critical locations on the loader arms and cylinder mounts are reinforced with plate steel to add durability. The pivot points of the loader are constructed of high strength steel to create a wear resistant joint.

The bucket assembly is manufactured to provide a structurally stable container to excavate, transfer, and load most types of product. The cutting edge is reinforced by a 1/2" thick grader blade material spanning the full width of the bucket. The bucket working load capacity is 1/3 cubic yard.

RECOMMENDED TIRE INFLATION

Recommended tire pressure for the rear tires is 25 psi minimum, maximum to manufacturer's recommended pressures.

BACKHOE

Refer to the ALLMAND Backhoe Operators Manual for any general information.

GASOLINE ENGINES

Available engines include a ROBIN EH64 20.5 H.P. or a KOHLER COMMAND 25 H.P. four-cycle OHV air-cooled gasoline engine. (Horsepower rating is made with engine at 3600 RPM) Engines includes: low oil pressure light, 12 VDC electrical system with starter and 12 volt 15 amp. regulated battery charging circuit, overhead valve design, full pressure lubrication, and maintenance-free electronic ignition.

DIESEL ENGINES

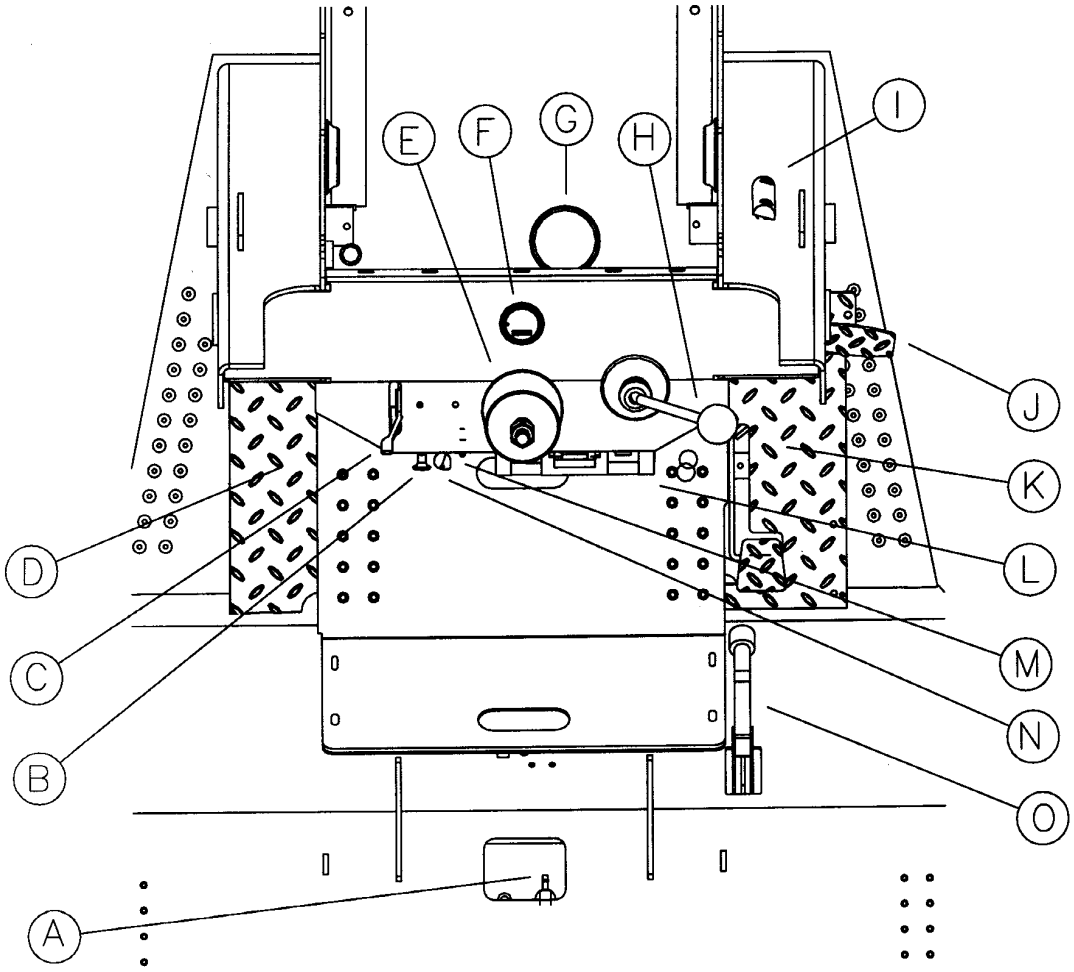
Available Kubota engines include the D905, 54.8 cu. in., 20 H.P. and the D1105, 68.8 cu. in., 25 H.P. four-cycle, three cylinder, water cooled diesel engine. (Horsepower rating is made with engine at 3000 RPM) Engine includes: low oil pressure sensor, 12 VDC electrical system with starter and 30 amp. regulated battery charging circuit, spherical overhead valve design, full pressure lubrication, and Bosch (MD type mini pump) injection pump.

Available ISUZU engines include the 3LD1 33.3 HP., four-cycle, three cylinder, water cooled diesel engine. (Horsepower rating is made with engine at 3000 RPM) Engine includes: low oil pressure sensor, high water temperature sensor (these sensors operate warning lights on the dash panel. Tractor is not equipped with automatic shutdown systems), 12 VDC electrical system with starter, glow plugs, fuel solenoid and 20 amp. regulated alternator charging circuit, full pressure lubrication, and Zexel individual injection pumps.

INSTRUMENT PANEL AND CONTROLS (Gas Powered Tractors)

NOTE: Engine will not start unless foot pedal is in the neutral position.

A FUEL TANK
B CHOKE
C THROTTLE
D LEFT FOOT REST
E STEERING CONTROL
F HOUR METER
G OIL FILL/BREATHER CAP
H LOADER HYDRAULIC CON TROL LEVER
I HYDRAULIC OIL LEVEL SIGHT GLASS
J FOOT PEDAL-FORWARD/ REVERSE
K RIGHT FOOT REST
L OPERATOR'S MANUAL BOX
M WORKLIGHT TOGGLE SWITCH
N KEY SWITCH
O PARK BRAKE



INSTRUMENT PANEL AND CONTROLS (Diesel Powered Tractors)

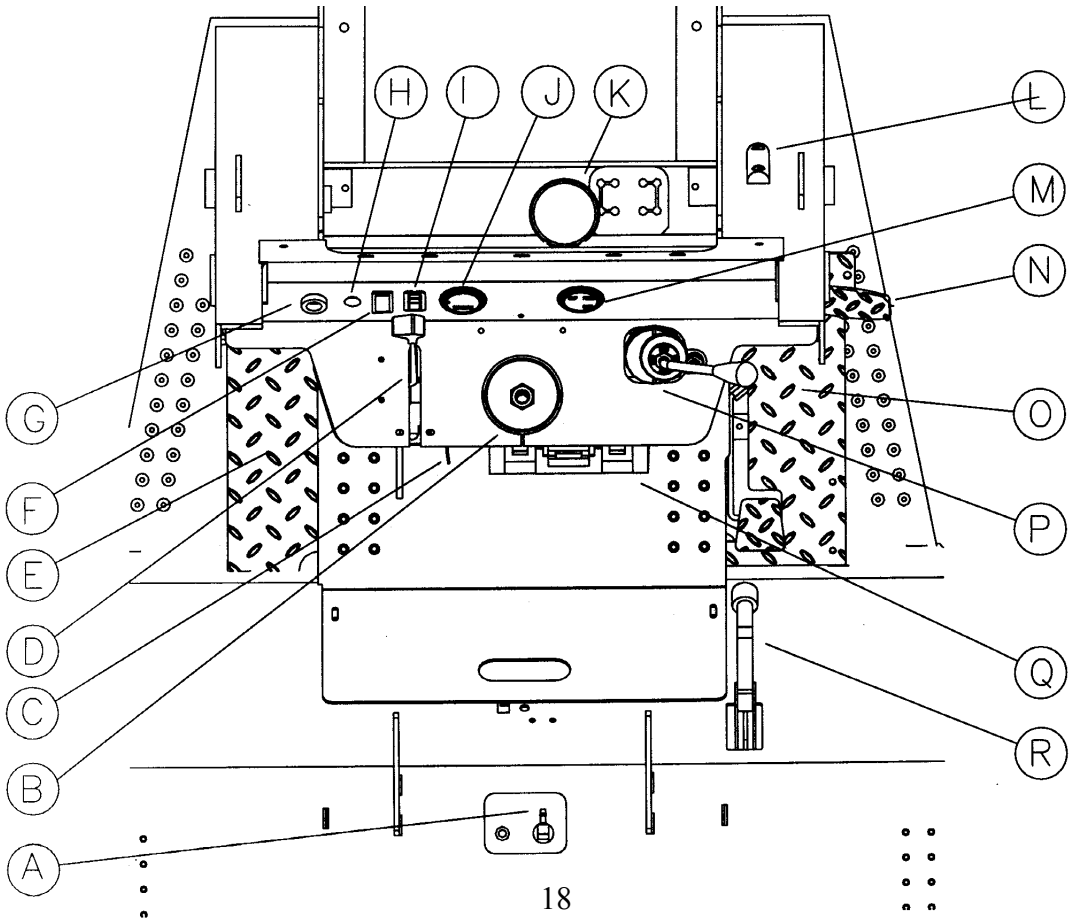
IMPORTANT: When the Low Engine Oil Pressure indicator is activated, stop engine immediately and investigate cause of problem. Do not restart engine until problem has been corrected.

IMPORTANT: When the High Water Temperature indicator is activated, do not stop engine. Reduce load and run engine at slow idle. If indicator remains on after several minutes, stop engine and allow cooling time before servicing engine.

IMPORTANT: When Engine Alternator Low Volts Indicator is activated, a problem is developing. It is not necessary to stop the engine immediately, but the cause should be investigated as soon as possible

A FUEL TANK
B STEERING CONTROL
C KEY SWITCH
D ENGINE THROTTLE
E LEFT FOOT REST
F FRONT WHEEL ASSIST SWITCH
G GLOWPLUG INDICATOR
H FRONT WHEEL ASSIST PUSH BUTTON
I WORK LIGHT SWITCH
J HOUR METER
K OIL FILL/BREATHER CAP
L HYDRAULIC OIL LEVEL SIGHT GLASS
M WARNING LIGHT CLUSTER GAUGE
N FOOT PEDAL--FORWARD/REVERSE
O RIGHT FOOT REST
P LOADER HYDRAULIC CONTROL LEVER
Q OPERATOR'S MANUAL BOX
R PARK BRAKE

NOTE: Engine will not start unless foot pedal is in the neutral position.



SPECIFICATIONS

OVERALL DIMENSIONS

▪ Weight	3100 lbs. (1395 kg) 4620 lbs. (2100 kg) ESL
▪ Length	16’ (4.80 m)
▪ Height	82.5" (2.09 m)
▪ Width	56" (1.42 m)
▪ Wheelbase	65" (1.65 m)
▪ Ground Clearance	9" (22.8 cm) 111" (27.9 cm) ESL

TRACTOR

▪ Engines	Robin EH64 Kohler Command 20 Kubota D905 or D1105 Isuzu 3LD1
▪ Transmission	Hydrostatic
▪ Drive motor	Ross ME Series
▪ Power steering	Series 5 Load Sensing
▪ Differential	Dana 44 Limited Slip
▪ Brakes	Hydrostatic
▪ Parking brake	Band type
▪ Speed range	0 to 5.5 MPH (9.2 km/h)
▪ Auxiliary hydraulic pump	Gear pump
▪ Auxiliary hydraulic output (Loader)	6 gpm @ 2500 psi
▪ Auxiliary hydraulic output (Backhoe)	6 gpm @ 2150 psi
▪ Fuel tank	12 gallons (54 L)
▪ Hydraulic oil reservoir	10 gallons (45.4 L)
▪ Tire size (Front)	23 x 8.5 - 12
▪ Tire size (Rear)	31 x 15.5 - 15
▪ Tire Pressure (Front)	Inflate to manufacturer’s Recommendations
▪ Tire Pressure (Rear)	25 p.s.i. min. Max. as specified by manufacturer

LOADER

▪ Maximum lift height (Bucket Pivot)	90" (2.29 m)
▪ Clearance with bucket dumped	76" (1.93 m)
▪ Reach @ maximum height	30" (76.2 cm)
▪ Reach @ grade	54" (1.37 m)
▪ Bucket rollback angle	40 degrees
▪ Bucket dump angle	25 degrees
▪ Digging depth	4" (10.2 cm)
▪ Lift capacity	1700 lbs. (765 kg)
▪ Breakout force	2600 lbs. (1179 kg)
▪ Bucket width	56" (1.28 m)
▪ Bucket capacity	1/3 yd (.25 cu. m)

Specifications are subject to change without notice

HYDROSTATIC TRANSMISSION:

▪ Displacement	1.44 in^3/r (23.6 cm^3/r)
▪ Flow @ rated speed and pressure	20 GPM (75.7 L/min.)
▪ Speed; Input	3600 RPM (Max.)
▪ Power, Input @ 3600 RPM	35 HP (26 kw)(Max.)
▪ Operating pressure (Max.)	3000 PSI (207 Bar) - Cont. 5000 PSI (345 Bar) - Inter.
▪ Pump element	Piston
▪ Operating temperature	225 deg.F(107 deg.C)(Max.)

ENGINE SPECIFICATIONS: Standard Tractor Models

Model	**Robin EH 64**	**Kohler CH 20**	**Kubota D905**
Bore	3.15” (80 mm)	3.03” (77 mm)	2.83” (72 mm)
Stroke	2.56” (65 mm)	2.64” (67 mm)	2.90” (73.6 mm)
Displacement	39.9 cu. in. (653 cc)	38 cu. in. (624cc)	54.8 cu. in. (898 cc)
Power @ 3600 RPM	20.5 HP (15 kw)	20 HP (18.6 kw)	20.5 HP (15 kw)
Max torque @2500 RPM	34 ft./lbs. (4.6 kg/m)	32 ft./lbs. (4.4 kg/m)	40 ft./lbs. (5.5 kg/m)
Compression ratio	8.3:1	8.5:1	23:1
Weight	96.9 lbs. (44 kg)	90 lbs. (41 kg)	205 lbs. (93 kg)
Oil capacity (with filter)	1.64 US qts (1.55 L)	2 US qts (1.9L)	5.4 US qts (5.1 L)
Lubrication	Full Pressure w/Filter	Full Pressure w/Filter	Full Pressure w/Filter
Cooling System	Air Cooled	Air Cooled	Pressurized System

ENGINE SPECIFICATIONS: ESL Tractor Models

Model	**Kubota D1105**	**Isuzu 3LD1**
Bore	3.07” (78 mm)	3.27” (83 mm)
Stroke	3.09” (78.4 mm)	3.62” (92 mm)
Displacement	68.8 cu. in. (1123 cc)	91.3 cu. in. (1.5 L)
Power @ 3600 RPM	25.5 HP (15 kw)	33.3 HP (15 kw)
Max torque @2500 RPM	54 ft./lbs. (7.49 kg/m)	70.3 ft./lbs. (9.53 kg/m)
Compression ratio	23:1	22:1
Weight	205 lbs. (93 kg)	291 lbs. (132 kg)
Oil capacity (with filter)	5.4 US qts (5.1 L)	6.7 US qts (6.3 L)
Lubrication	Full Pressure w/Filter	Full Pressure w/Filter
Cooling System	Pressurized System	Pressurized System

**Horsepower ratings are established in accordance with Society of Automotive Engineers - Small Engine Test Code - J1349 GROSS.*

FUEL REQUIREMENTS-Gas Engines

Your engine is designed to use unleaded gasoline with a pump sticker octane rating of 87% or higher. Gasohol (up to 10% ethyl alcohol, 90% unleaded gasoline by volume) and MTBE (Methyl Tertiary Butyl Ether), unleaded gasoline (up to maximum of 15% MTBE by volume) are approved fuels . Other gasoline blends are not approved. Refer to the Engine Operator's Manual for more detailed fuel requirements.

FUEL REQUIREMENTS-Diesel Engines

Your engine is designed to use clean No. 2 Diesel fuel (SAE J313 JUN 87) according to ASTM D975. Do not use alternative fuel, because its quality is unknown or it may be inferior in quality. Kerosene, which is very low in cetane rating, adversely affects the engine. Refer to the Engine Operator's Manual for more detailed fuel requirements.

ENGINE OIL REQUIREMENTS-Gas Engines

Use a high quality detergent engine oil of API (American Petroleum Institute) service class SE or higher. Use of 5W or 5W-30 (synthetic oil is acceptable) for operation in temperatures of 14° F. and below are recommended. Use of 10W-30 or 10W-40 for operation in temperature 14° F. and above are recommended. Refer to the Engine Operator's Manuals for more detailed engine oil requirements.

ENGINE OIL REQUIREMENTS-Diesel Engines

Use a high quality detergent engine oil of API (American Petroleum Institute) service class CC/CD/CE grades, or be MIL-L-2104C. Use of 10W-30 or 10W-40 is recommended. Refer to the Kubota Operator's Manual for more detailed engine oil requirements.

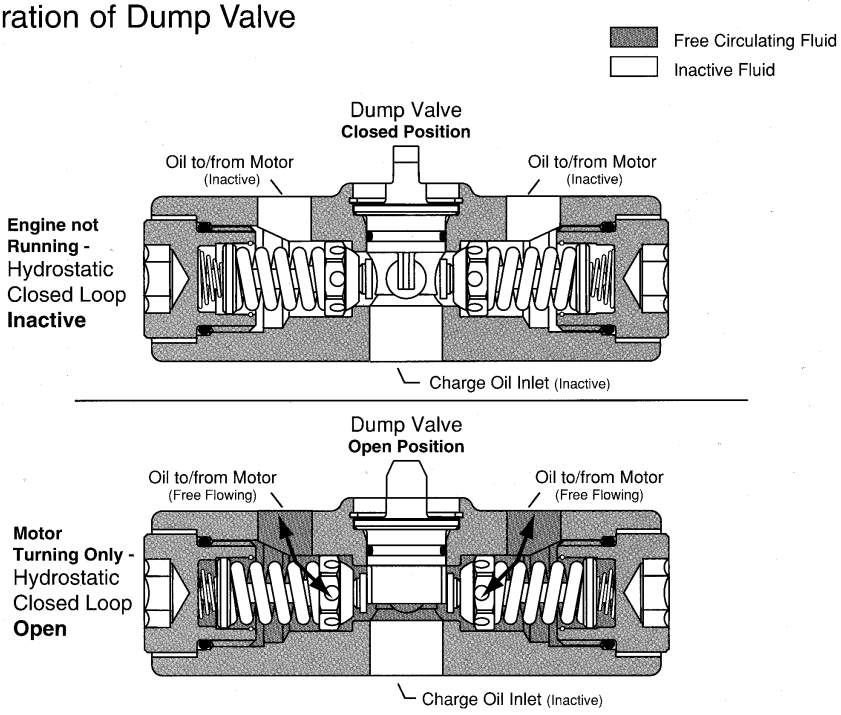
HYDRAULIC OIL REQUIREMENTS

Use a high quality multipurpose fluid with an SAE 20W/ISO 68/GL - 4 rating.
Use only the 920335 10 Micron **Fiberglass** hydraulic filter or equivalent Fiberglass filter.

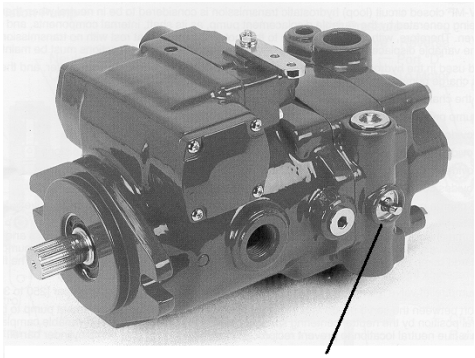
NOTE: The **Allmand TLB** has been factory filled with HYDROCLEAR 9836.

HYDROSTAT DUMP VALVE OPERATION

Operation of Dump Valve



The purpose of the dump valve is to allow the movement of a disabled vehicle or if you have a vehicle that you just want to push a short distance, without starting the engine. When a hydrostatic driven vehicle is shut down it is virtually impossible to move the vehicle without opening the hydrostatic closed loop circuit. If an attempt is made to push the vehicle the hydraulic motor becomes a pump, trying to pump oil to the hydrostatic pump. This creates a hydraulic lock between the motor and the pump. To overcome this condition, a dump valve has been installed between the high pressure relief valves in the backplate of the piston pump. The dump valve is a plug that contains a rotating stem which has a flat spade end that fits between the two ends of the high pressure relief valves. When the dump valve is in the “closed position”, the relief valves are also in the closed position as shown in the top illustration. When the dump valve stem is rotated 90 degrees, the flat spade end spreads the relief valves to the “open position” as shown in the lower illustration. This allows the oil in the hydrostatic closed loop to “by-pass” around the high pressure relief valves inside the pump backplate. The by-passing of oil inside the pump backplate will allow the motor to rotate freely when the vehicle is moved a short distance. The dump valve is intended only for moving a vehicle a very short distance and not intended for towing a vehicle behind a truck or tractor. **NOTE**: **serious damage to the hydrostatic drive will result if vehicle is towed**.



DUMP VALVE LOCATION

ENGINE BREAK-IN

OBSERVE ENGINE OPERATION CLOSELY

IMPORTANT: Become thoroughly familiar with the sound and feel of your new machine. Read and understand the Engine Instruction Manual included with your **Allmand TLB** . Refer to the Engine instruction manual for seasonal fuel and oil viscosity recommendations.

NOTE: Engine is warranted to the original owner by the manufacturer.

OPERATOR RESPONSIBILITIES

- Check engine oil daily.
- Operate engine at normal loads.
- Check indicator lights and gauges (if equipped) frequently during operation.
- Avoid excess engine idling.
- Perform all engine maintenance in the Engine Instruction Manual.

NOTE: The engine owner is responsible for the performance of the required maintenance as defined by the engine manufacturer in the written instructions found in the Engine Instruction Manual provided with the engine.

NOTE: Start engine only from the operator's seat, with the foot pedal in the neutral position and the park brake engaged.

PRE-START CHECKLIST

- **CHECK** oil level, add if low. Do not overfill.
- **CHECK** fuel level, add if low.
- **CHECK** cooling air intake areas and external surfaces of engine. Make sure they are clean and unobstructed.
- **CHECK** that the air cleaner components and all shrouds, equipment covers and guards are in place and securely fastened.
- **CHECK** forward / reverse pedal. Make certain that the pedal is exactly in neutral; if not, the engine will not start.

WARNING: LETHAL EXHAUST GASES

Engine exhaust gases contain poisonous carbon monoxide. Carbon monoxide is odorless, colorless and can cause death if inhaled. Avoid inhaling exhaust fumes.

NEVER RUN THE ENGINE IN A CLOSED BUILDING OR CONFINED AREA WITHOUT HAVING ADEQUATE VENTILATION!

COLD WEATHER STARTING TIPS

1. Be sure to use the proper oil for the temperature expected.
2. Set speed control at part throttle position.
3. If possible warm the battery for more starting capacity.
4. Use fresh fuel at all times. Do not use gasoline or Diesel fuel left over from summer.

COLD WEATHER WARM-UP

In extremely cold weather conditions, an extended warm-up period will be necessary. Avoid operation of hydraulic systems until engine is thoroughly warmed up and all ice, snow and frozen mud has been removed from the machine.

NOTE: When hydraulic oil is cold it moves very slowly. Do not attempt machine operation until hydraulic oil has warmed and hydraulic systems function at close to normal times. Run engine at 1/2 speed for 15 to 20 minutes. Cycle all hydraulic systems to distribute warmed oil until all systems operate freely.

COLD WEATHER STARTING-Gas Engines

1. **For a Cold Engine:** Place throttle control **1/3 of the way** towards the**"fast"** position. **For a Warm Engine:** (Normal operating temperatures) Place throttle control **midway** between the **"slow"** and **"fast"** positions.

   NOTE: Do not place the choke in the **"on"** position until after the engine has been turned over with the starter. Possible flooding of the engine may occur if the choke is placed in the fully **"on"** position before starting to crank the engine.

2. Start the engine by activating the key switch. Release the switch as soon as the engine starts.

NOTE: Do not operate starter for more than 10 seconds without allowing 30 seconds to pass between starting attempts. Possible starter damage could result from excessive heat caused by cranking too long.

3. Warm up the engine at mid throttle without load. Insufficiently warming an engine can shorten its service life.

FOR A COLD ENGINE: Gradually return the choke control to the **"off"** position after the engine starts and warms up.

NOTE: If the engine develops sufficient speed to disengage the starter but does not keep running (a false start), the engine rotation must be allowed to come to a complete stop before attempting to restart the engine. If starter is engaged while the flywheel is rotating, the starter pinion and flywheel ring gear may clash, resulting in damage to the starter or flywheel ring gear.

NOTE: If the starter does not turn the engine over, stop cranking immediately. Do not make further attempts to start the engine until the condition is corrected. See your local Engine Service Dealer for trouble analysis

FOR A WARM ENGINE-Gas Engine

Return choke to the **"off"** position as soon as the engine starts.

STOPPING THE ENGINE-Gas Engine

Before leaving the operator's station:

1. Park the machine on a level surface and lower loader bucket, backhoe bucket and any other accessories to the ground.
2. Engage park brake.
3. Place the throttle midway between the **"slow"** and **"fast"** position. **Allow the engine to run at least 15 seconds before stopping the engine. Then move to the "slow" position.**
4. Turn the key switch to the **"off"** position.
5. Move hydraulic control levers to release hydraulic pressure from the system.

COLD WEATHER STARTING-Diesel Engine

1. Place throttle control midway between the **SLOW** and **FAST** positions.
2. Turn the key switch to the **PREHEAT** position, hold until the glow plug indicator lamp goes out, then release switch.
3. Turn the key switch to the **START** position and the engine should start. Release the key immediately when the engine starts. (If the engine fails to start, repeat steps 2 and 3.)

NOTE: Do not operate starter for more than 10 seconds without allowing 30 seconds to pass between starting attempts. Possible starter damage could result from excessive heat caused by cranking too long.

4. Warm up the engine at mid throttle without load. Insufficiently warming an engine can shorten its service life.

NOTE: If the engine develops sufficient speed to disengage the starter but does not keep running (a false start), the engine rotation must be allowed to come to a complete stop before attempting to restart the engine. If starter is engaged while the flywheel is rotating, the starter pinion and flywheel ring gear may clash, resulting in damage to the starter or flywheel ring gear.

NOTE: If the starter does not turn the engine over, stop cranking immediately. Do not make further attempts to start the engine until the condition is corrected. See your local Kubota Engine Service Dealer for trouble analysis

FOR A WARM ENGINE-Diesel Engine

Follow the same starting procedure as described for cold weather starting. Use of the glow plugs may not be necessary on a warm engine, and use of the glow plugs is not recommended in temperatures above 41° F.

IMPORTANT: Always check all the engine warning lights when starting. If the oil pressure light remains on, immediately stop the engine and check for the cause

⚠ CAUTION: PREVENT POSSIBLE INJURY FROM UNEXPECTED MACHINE MOVEMENT. NEVER RELY ON NEUTRAL POSITION OF FOOT PEDAL ALONE TO KEEP THE MACHINE FROM ROLLING. THE MACHINE CAN UNEXPECTEDLY ROLL OR MOVE UNDER POWER RESULTING IN SERIOUS INJURY OR DEATH. ALWAYS ENGAGE PARK BRAKE TO HOLD MACHINE STATIONARY!

STOPPING THE ENGINE-Diesel Engine

Before leaving the operator's station:

1. Park the machine on a level surface and lower loader bucket, backhoe bucket and any other accessories to the ground.
2. Engage park brake.
3. Place the throttle in the **"slow"** position. **Allow the engine to run at least 15 seconds before stopping the engine.**
4. Turn the key switch to the **"off"** position.
5. Move hydraulic control levers to release hydraulic pressure from the system.

CAUTION: PREVENT POSSIBLE INJURY FROM UNEXPECTED MACHINE MOVEMENT. NEVER RELY ON NEUTRAL POSITION OF FOOT PEDAL ALONE TO KEEP THE MACHINE FROM ROLLING. THE MACHINE CAN UNEXPECTEDLY ROLL OR MOVE UNDER POWER RESULTING IN SERIOUS INJURY OR DEATH. ALWAYS ENGAGE PARK BRAKE TO HOLD MACHINE STATIONARY!

ENGINE ANGLE OF OPERATION:

The engines can be operated at angles up to 25 degrees. Check oil level to assure crankcase oil level is at the full mark.

NOTE: Do not operate this engine continuously at angles exceeding 25 degrees in any direction. **Serious engine damage can occur from insufficient oil supply**.

COOLING:

NOTE: If debris builds up on the grass screen or other cooling air intake areas, stop the engine immediately and clean. Running this engine with blocked or dirty air intake and cooling areas can cause extensive damage due to overheating.

ENGINE SPEED:

NOTE: Do not tamper with the governor setting to increase the maximum engine speed. Over speed is hazardous and will void engine warranty. The maximum allowable high idle speed for the **Allmand TLB** is 3400 RPM (gas engine) and 3000 RPM (diesel engine) with no load.

BATTERY:

- The **Allmand TLB** is shipped with a 12 volt, group 24 battery with a 675 CCA rating.
- Check battery electrolyte level regularly and fill as needed.
- Replace with the same group size and amp rating when replacement is needed.

NOTE: The **TLB** electrical system is a 12-volt negative (-) ground.

CAUTION: An explosive gas is produced while batteries are in use or being charged. Keep flames or sparks away from the battery area. Make sure batteries are charged in a well-ventilated area. Always wear eye protection when servicing or handling batteries.

DRIVING ON PUBLIC ROADS

Become familiar with local laws and ordinances affecting driving on highways.
Use “slow moving vehicle” emblems to alert motorists.

CAUTION: USE OF A SEATBELT IS REQUIRED WHEN THE Allmand TLB IS IN OPERATION TO MINIMIZE THE CHANCE OF INJURY FROM AN ACCIDENT SUCH AS ROLL OVER.

OPERATING THE TRACTOR

1. Fasten seat belt
2. Retract backhoe bucket and dipperstick functions.
3. Raise backhoe boom, move it to the center, and engage boom lock.
4. Raise stabilizers and engage stabilizer locks.
5. Switch position to the front facing seat.
6. Raise the loader bucket off the ground and roll bucket back.

PARKING THE MACHINE

Before leaving the operator’s station, do the following:

1. Park the machine on a level surface.
2. Lower all equipment to the ground.
3. Move the throttle to the **“slow”** position.
4. Move the forward / reverse pedal to the neutral position.
5. Engage park brake.
6. Operate engine at 1/2 speed without load for at least 15 seconds, then move to the “slow” position.
7. Turn the key switch to the **“off”** position, and remove key.
8. Release all hydraulic pressure from the system by moving all hydraulic controls until loader bucket and backhoe are resting on the ground or on the stops.

CAUTION: PREVENT POSSIBLE INJURY FROM UNEXPECTED MACHINE MOVEMENT. NEVER RELY ON NEUTRAL POSITION OF FOOT PEDAL ALONE TO KEEP THE MACHINE FROM ROLLING. THE MACHINE CAN UNEXPECTEDLY ROLL OR MOVE UNDER POWER RESULTING IN SERIOUS INJURY OR DEATH. ALWAYS ENGAGE PARK BRAKE TO HOLD MACHINE STATIONARY! IF PARKING ON A SLOPE, PUT BLOCKS ON THE DOWNHILL SIDE OF THE WHEELS TO PREVENT MOVEMENT.

FORWARD / REVERSE PEDAL

To change direction of movement on the **Allmand TLB** use the forward / reverse pedal, located on the right side of the tractor frame.

NOTE: Reduce speed when changing directions of travel for safety.

1. Lightly depress the forward pedal with the toe of the right foot to travel forward.
2. Lightly depress the rear pedal with the heel of the right foot to travel in reverse.

NOTE: By lightly depressing the pedals forward and reverse, torque is developed to be transferred to the drive wheels by the hydraulic motor and differential set-up. The further the forward and reverse pedals are depressed, the faster ground speed. Torque will decrease as ground speed increases.

3. Move the forward / reverse pedal to the neutral position to stop.

NOTE: The pedal returns to a neutral position when pressure is released from the forward and reverse pedals.

LOADER CONTROL VALVE LEVER

The loader control valve returns to the neutral position when released, except when in the float position.

A - Move the control valve lever **forward** to **lower** loader arms.

AA - Move the control valve lever **forward** past the detent. This is the **float** position.

B - Move the control valve lever **back** to **raise** the loader arms.

C - Move the control valve lever **left** to **roll back** the bucket.

D - Move the control valve lever **right** to **dump** the bucket.

For faster loader cycle times follow these simple tips:

1. Run engine at fast idle.
2. Move the loader boom and the bucket at the same time.
3. **Without using force,** move control valve lever fully toward each function.

CAUTION!

PREVENT POSSIBLE INJURY FROM UNEXPECTED MACHINE MOVEMENT, OPERATE THE LOADER ONLY WHEN YOU ARE IN THE OPERATOR'S SEAT FACING FORWARD.

OPERATING TIPS

- Reduce speed when driving over rough terrain, carrying heavy loads, or working in a congested area.
- Whenever possible, avoid obstacles, such as rough terrain, rocks, curbs and ditches.
- In general, by decreasing machine speed the control of the machine increases.
- When the backhoe is not in use, the backhoe boom must be locked in the fully raised position. Curl the backhoe bucket up and retract dipperstick.
- When driving the **Allmand TLB**, carry the loader bucket low for good visibility and machine stability.
- Walk the job site to uncover any hazards and to plan the job.
- Practicing good housekeeping on the job site will help maximize machine stability, reduce operator fatigue, and increase productivity.
- Material that is loose and fragmented dumps much easier than material that is hard and compacted.

Excavate material in thin layers rather than jamming it into the bucket. This will allow the material to break up as it enters the bucket. This is especially important when moving sticky, wet materials.

- Clean the bucket by hand, if at all possible. If rapping the bucket against the stops is the only option, then do so using MINIMUM force, to prevent cylinder damage.
- DO NOT try removing stuck material from the bucket by striking it against the ground or another object.

PREPARING TO OPERATE BACKHOE

1. Position loader bucket flat on the ground. Lower loader arms to raise wheels off the ground.
2. Engage park brake.
3. Switch seats to position operator facing the backhoe.
4. Disconnect stabilizer locks and lower stabilizers to level unit.
5. Disengage swing lock and backhoe boom lock.

PREPARING TO OPERATE LOADER AFTER OPERATING BACKHOE

1. Retract backhoe bucket and dipperstick functions. Raise backhoe boom.
2. Center boom and engage boom lock and swing lock.
3. Raise stabilizers.
4. Engage stabilizer locks.
5. Switch seats to position operator facing the front end loader.
6. Roll back loader bucket until bottom is parallel with the ground.

MAINTENANCE INSTRUCTIONS-Gasoline Engine Tractors

WARNING: Accidental Starts!

Before servicing the engine or equipment, always remove the ignition keys to insure there will not be any accidental start up. Make sure the equipment is in neutral and park brake set.

MAINTENANCE SCHEDULE

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up.

NO.	CHECKPOINTS	HOURLY INTERVALS					
		5	8	100	200	500	1000
1	Check engine oil level, fill if needed		O				
2	Change engine oil with seasonal viscosity	O		O			
3	Clean air cleaner element		O				
4	Check battery electrolyte level			O			
5	Replace oil filter cartridge	O			O		
6	Remove cooling shrouds and clean*			O			
7	Check oil cooler fins, clean as necessary			O			
8	Check fuel tank for sediment, clean as necessary			O			O
9	Check spark plug condition and gap				O		
10	Have UTE bendix starter drive serviced**					O	
11	Check engine valve clearance**					O	
12	Replace air cleaner element				O		
13	Check electrical wiring for damaged or loose connections		O	O			
14	Tighten tie rod ends	O	O	O	O	O	O
15	Tighten lug nuts to 80 ft/lb	O	O	O	O	O	O
16	Check hydraulic oil level, fill if necessary		O				
17	Check all fasteners for tightness	O	O	O			
18	Check backhoe bucket teeth, replace if necessary		O				
19	Grease all swivel points (loader and backhoe)		O				
20	Grease drive hub coupler				O		
21	Grease right foot pedal mount and center bearing mount			O			
22	Check fuel filter, replace if necessary			O			
23	Check hydraulic hoses for damage and loose connections	O	O	O			O
24	Change hydraulic return filter **(see note below)**				O		
25	Change hydraulic fluid and clean suction strainers				O		O
26	Re-lubricate splines					O	
27	Check loader bucket stops for damage			O			

O - Indicates that jobs must be done after the first 5 hours respectively.

***** - Perform these maintenance procedures more frequently under extremely dusty and dirty working conditions.

**-Have an Engine Service Dealer perform this service.

Hydraulic fluid should be changed every 1000 hours after the first 250 hour change.

NOTE: All daily checks should be done with every engine oil change.

NOTE: Change hydraulic return filter at the first 50 hours then every 200 hours.

MAINTENANCE INSTRUCTIONS-Diesel Engine Tractors

WARNING: Accidental Starts!
Before servicing the engine or equipment, always remove the ignition keys to insure there will not be any accidental start up. Make sure the equipment is in neutral and park brake set.

MAINTENANCE SCHEDULE

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up.

NOTE: Every 500 hours of operation, separate the pump from the engine. Clean the splined areas and lightly grease the male portion of the pump spline. Use either Dow Corning G-N Metal Assembly Paste or #77 Assembly Paste. When remounting the pump, be certain the mating surfaces are clean and correctly aligned.

NO.	CHECKPOINTS	HOURLY INTERVALS					
		8	50	250	500	750	1000
1	Check engine oil level, fill if needed	O					
2	Change engine oil with seasonal viscosity		O	O	O	O	O
3	Cooling system circuit cleaning						O
4	Check battery electrolyte level	O		O			
5	Replace oil filter cartridge		O		O		O
6	Check fan belt for tightness	O		O		O	
7	Check oil cooler fins, clean as necessary	O		O		O	
8	Check fuel tank for sediment, clean as necessary			O			O
9	Check radiator hoses and clamps for leaks	O			O		
10	Starter and alternator check						O
11	Check fuel lines for leaks	O					
12	Check air cleaner element	O	O				
13	Replace air cleaner element						O*
14	Check electrical wiring for damaged or loose connections	O	O	O			
15	Tighten tie rod ends to 35 ft/lbs	O	O	O	O	O	O
16	Tighten lug nuts to 80 ft/lbs	O	O	O	O	O	O
17	Check hydraulic oil level, fill if necessary	O	O				
18	Check all fasteners for tightness	O		O			
19	Check backhoe bucket teeth, replace if necessary	O					
20	Grease all swivel points (loader and backhoe)	O					
21	Grease drive hub coupler				O		
22	Grease right foot pedal mount and center bearing mount			O			
23	Check fuel filter, replace if necessary					O	
24	Check hydraulic hoses for damage and loose connections	O	O	O			O
25	Change hydraulic return filter				O		
27	Change hydraulic fluid and clean suction strainers				O		O
28	Check loader bucket stops for damage		O				

O - Indicates that jobs must be done after the first 5 hours respectively.

***** - Perform these maintenance procedures more frequently under extremely dusty and dirty working conditions.

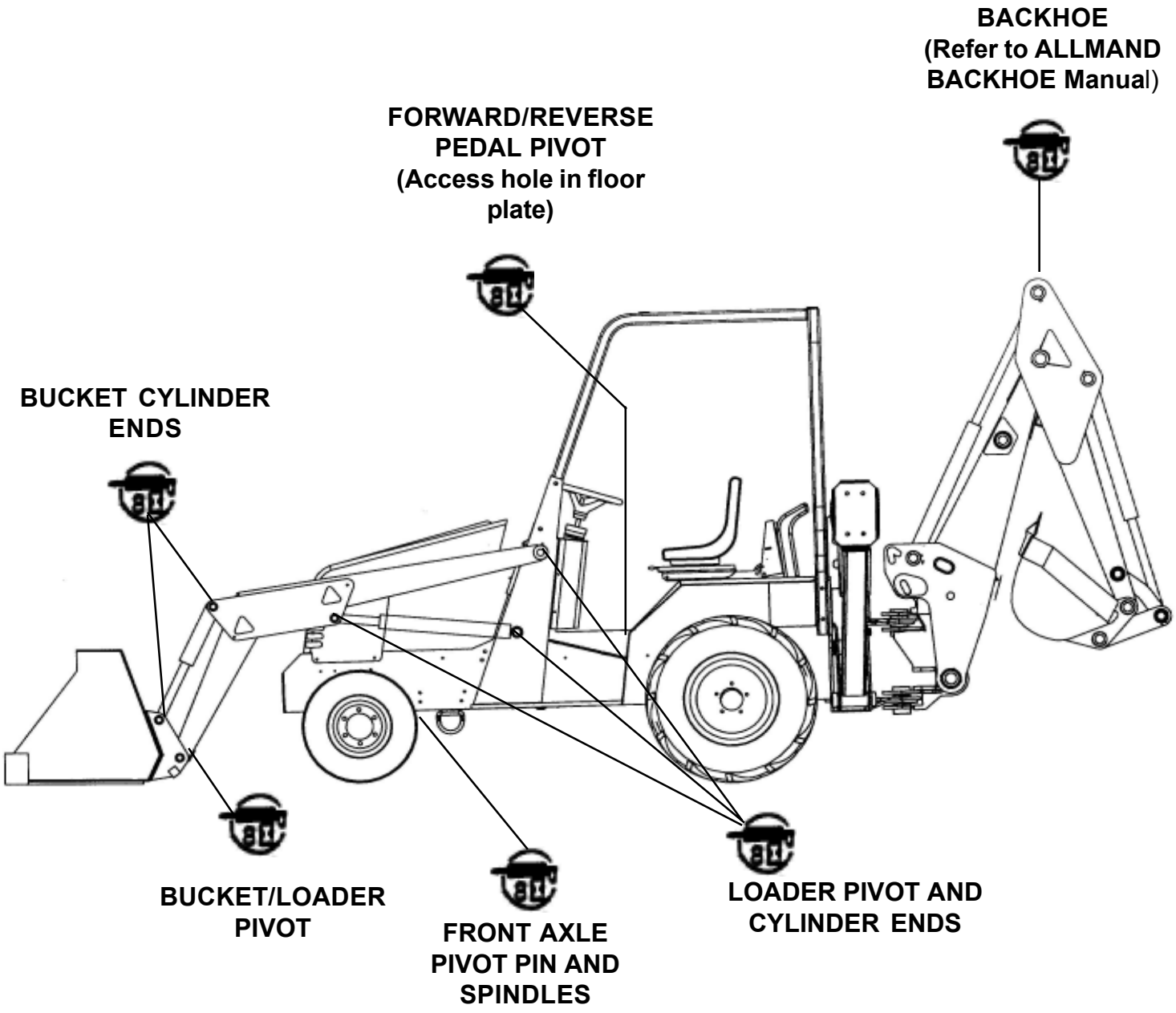
Hydraulic fluid should be changed every 1000 hours after the first 250 hour change.

NOTE: All daily checks should be done with every engine oil change.

NOTE: Change hydraulic return filter at the first 50 hours then every 200 hours.

LUBRICATION

The following diagram will direct maintenance personal to the lubrication points that will need to be greased on a daily schedule. Use of a multi-purpose grease is recommended.



PREPARATIONS FOR STORAGE

1. When preparing the **Allmand TLB** for storage, first remove floor plate and steering column cover. Wash off all dirt and grease from all the major components and connecting hoses. Coat the exposed cylinder rods with grease and grease all the grease fittings.

2. **IMPORTANT:** When washing the **Allmand TLB**, allow engine and hydraulic system to cool before washing. Cold water on a hot engine or hydrostatic pump can cause costly damage. **DO NOT** direct the stream of water, when washing, directly at the hydraulic system breather, it is possible to get water into the hydraulic system and contaminate the fluid.

3. Make sure the battery is fully charged, battery terminals are clean and have a corrosion protectant applied.

4. Change the engine oil and run for 5 minutes to allow the oil to penetrate to all the parts.

5. Drain the fuel system, fuel tank, fuel pump, and carburetor, or add a fuel stablilizer to prevent gasoline from gumming up the fuel system during storage.

6. Place the **Allmand TLB** in a clean, dry place and cover if at all possible.

TROUBLESHOOTING

GENERAL

Proper troubleshooting begins with an organized approach to the problem at hand. Begin with investigation of the most probable cause, following the guidelines below.

Study the problem thoroughly before taking action:

- Did warning signs precede the problem? If so, what were they? What would they indicate?
- Is scheduled maintenance current on all parts and systems involved?
- Has similar trouble occurred before? What action was taken at the time?
- Can the engine be operated without further damage?

! CAUTION

IF RUNNING INSPECTION MUST BE MADE, GET ASSISTANCE. OPERATOR SHOULD REMAIN SEATED ON MACHINE THROUGHOUT INSPECTION. SET PARKING BRAKE. MAKE SURE TRANSMISSION IS IN NEUTRAL POSITION.

Check the most convenient things first:

- Don't begin major work before checking all other possibilities.
- Reconsider all known facts and clues before proceeding to more in-depth work.

Correct the basic cause:

- Remember, failure of a certain part may be caused by a malfunction of another part or system

SCHEMATICS

This troubleshooting section incorporates electrical schematic diagrams formatted for ease of use by maintenance and for the training of personnel

WARNING

THE TROUBLESHOOTING CHART AND PROCEDURES OUTLINED IN THIS SECTION SHOULD NOT BE ATTEMPTED BY OTHER THAN EXPERIENCED MECHANICS OR PERSONNEL UNDER THE DIRECT SUPERVISION OF AN EXPERIENCED MECHANIC. FAILURE TO COMPLY MAY RESULT IN DAMAGE TO EQUIPMENT AND/OR INJURY OR DEATH TO PERSONNEL.

TROUBLESHOOTING CHART

The troubleshooting chart lists problems that might be encountered in the operation of the **Allmand TLB**. The remedies listed may direct the repairman to a possible faulty component.**)**

A - ENGINE

- For engine troubleshooting charts indicating faults and recommended repair procedures, refer to Manufacturer's Operation and Maintenance Manual.
- If your particular problem is not covered or you are unsure of what steps to take, contact factory for assistance.

B – TRANSMISSION

Allmand TLB fails to move under power:

- Parking brake set.
- Dump Valve engaged.
- Inadequate oil level in hydraulic reservoir.
- Control pedal, or linkage, broken or loose.
- Inadequate oil flow through suction strainer.
- Hydrostatic pump failure.
- Drive motor failure.

Allmand TLB moves in neutral:

- Control pedal neutral centering device broken or out of adjustment.

For detailed troubleshooting information on hydrostatic transmissions, refer to Troubleshooting Manual, Eaton Hydraulic Transmissions, available from an Eaton repreesentative or dealer.

C – ELECTRICAL SYSTEM

ENGINE STATUS	VOLTMETER READING	INDICATES	TO CORRECT
RUNNING	13.5 TO 14 VOLTS	NORMAL CONDITION	NONE
RUNNING	LESS THAN 13.5 VOLTS OR MORE THAN 14 VOLTS	ALTERNATOR OR REGULATOR MALFUNCTION	CONTACT DEALER
WON'T START	12 TO 12.5 VOLTS	WEAK BATTERY	CHARGE BATTERY
WON'T START	LESS THAN 12 VOLTS	WEAK BATTERY OR DEFECTIVE BATTERY CELL	CHARGE OR REPLACE BATTERY
STOPPED	EXCESSIVE CURRENT DRAW	SHORT CIRCUIT	INSPECT SYSTEM

D - HYDRAULIC SYSTEM

- Thoroughly review description of hydraulic system in this manual.
- Use logical steps to determine cause of malfunction.
- Identify the function or functions which require troubleshooting.
- If possible, trace malfunction to source: pump, control, motor or cylinder.
- Determine if pressure or volume is inadequate for function as specified.

D - HYDRAULIC SYSTEM (continued)

Hydraulic System Pressures

- Steering 1500 p.s.i.
- Main circuit (Loader) 2500 p.s.i.
- Main circuit (Backhoe) 2150 p.s.i.

Hydraulic System Flows

- Main circuit 6 g.p.m

PROBLEM	POSSIBLE CAUSE	CORRECTION
NO LOADER LIFT OR BUCKET ROLLBACK	Inadequate pressure	Inspect, clean or replace relief valve
INAPPROPRIATE LIFT SPEED	Fluid flow to loader cylinders too high or too low.	Inspect or replace priority valve
	Cold hydraulic fluid	Warm hydraulic fluid by running engine
	Low engine R.P.M.	Move throttle control to fast position to increase R.P.M.

STEERING

Most steering problems can be corrected if the problem is properly defined. The entire steering system should be evaluated before removing any components. The steering control unit is generally not the cause of most steering problems. The following is a list of steering problems along with possible causes and suggested corrections.

PROBLEM	POSSIBLE CAUSE	CORRECTION
SLOW STEERING, HARD STEERING, OR LOSS OF POWER ASSIST	Worn or malfunctioning pump	Replace pump
	Stuck flow divider in gear pump	Replace flow divider cartridge in gear pump
	Malfunctioning relief valve allowing system pressure to be too low	Replace the relief valve
	Overloaded steering axle	Reduce the load
	Leaking or kinked load sensing signal line.	Correct
	Malfunctioning priority valve	Check spring and sticking spool. Check dampin orifices in both ends of main bore for debris. Check system pressure at SCU inlet for proper system pressure. If not, correct replace priority valve relief cartridge.
WANDER-VEHICLE WILL NOT STAY IN A STRAIGHT LINE	Air in the system due to low level of oil, cavitation op pump, leaky fitting, pinched hose, etc.	Correct as needed
	Worn mechanical linkage	Repair or replace
	Bending of linkage or cylinder rod	Repair or replace
	Loose cylinder piston	Repair or replace
	Severe wear in steering orbitrol	Repair or replace
DRIFTS-VEERS SLOWLY IN ONE DIRECTION	Worn or damaged steering linkage	Replace linkage and align front end

STEERING (continued)

PROBLEM	POSSIBLE CAUSE	CORRECTION
SLIP—SLOW MOVEMENT OF STEERING WHEEL FAILS TO CAUSE ANY MOVEMENT OF STEERED WHEELS	Leakage of cylinder piston seals or accessory valve between cylinder line or ports.	Replace seals or accessory valve
	Worn steering control unit meter	Replace steering control unit
TEMPORARY HARD STEERING OR HANG-UP	*Thermal Shock	Check unit for proper operation and cause of thermal shock
ERRATIC STEERING	Air in system due to low level of oil, cavitation of pump, leaky fitting, pinched hose, etc.	Correct condition and add fluid
	Loose cylinder piston	Replace cylinder
	*Thermal shock damage	Replace steering control unit
	Sticking flow control cartridge in gear pump	Replace flow control cartridge or gear pump
"SPONGY" OR SOFT STEERING	Air in hydraulic system. Most likely air trapped in cylinders or lines	Bleed air out of system
	Low fluid level	Add fluid and check for leaks
FREE WHEELING—STEERING WHEEL TURNS FREELY WITH NO FEELING OF PRESSSURE AND NO ACTION OF STEERED WHEELS	Steering column upper shaft is loose or damaged	Tighten steering wheel nut
	Lower splines of column may be disengaged or broken	Repair or replace column
	Steering control unit meter has a lack of oil. This can happen on start-up, after repair, or long periods of non-use	Usually starting engine and allowing hydraulic oil to circulate will cure the problem
	No flow to steering control unit—Can be caused by:	
	Low fluid level	Add fluid and check for leaks
	Ruptured hose	Replace hose
	Internal steering control unit damage due to "Thermal Shock"	Replace the steering control unit
FREE WHEELING—STEERING WHEEL TURNS WITH SLIGHT RESISTANCE BUT RESULTS IN LITTLE OR NO STEERED WHEEL ACTION	Cylinder piston seal blown out.	Determine the cause. Correct the cause and replace the blown seal.
EXCESSIVE FREE PLAY AT STEERING WHEEL	Loose steering wheel nut. Steering column shaft worn or damaged. There should be very little play in the unit itself	Repair or replace steering wheel connection or column
EXCESSIVE FREE PLAY AT STEERED WHEELS	Broken or worn linkage between cylinder and steered wheels	Check anchor points in steering linkage between cylinder and steered wheels
	Leaking cylinder seals	Replace cylinder seals

*****Thermal Shock is defined on the following page.

STEERING (continued)

PROBLEM	POSSIBLE CAUSE	CORRECTION
STEERING UNIT LOCKS UP	Large particles in meter section	Clean the unit
	Insufficient hydraulic power	Check hydraulic power supply
	Severe wear and/or broken pin	Replace the unit
	*Thermal Shock	Replace the unit
STEERING WHEEL OSCILLATES OR TURNS BY ITSELF	Parts assembled wrong. Steering unit improperly timed	Correct timing
	Lines connected to wrong ports	Reconnect lines correctly
STEERED WHEELS TURN IN WRONG DIRECTION WHEN OPERTOR ACTIVATES STEERING WHEEL	Lines connected to wrong steering cylinder ports	Reconnect lines correctly

***Thermal Shock** - A condition caused when the hydraulic system is operated for some time without turning the steering wheel so that fluid in the reservoir and system is hot and the steering control unit is relatively cool (more than 50*F temperature differential). When the steering wheel is turned quickly the result is temporary seizure and possible damage to internal parts of the steering control unit. The temporary seizure may be followed by total free wheeling.

LOADER LIFT AND BUCKET ROLL BACK

The entire system should be evaluated before removing any components. The following is a list of problems with possible causes and suggestions for correction.

NOTE:

- It is important to check the loader bucket stops periodically for damage. If the stops are worn, the cylinder rods may come in contact with the bucket pin grease zerk.
- Check clearance between the rod and the zerk with the bucket rolled to the dump position. There should be a minimum of 1/2" clearance.
- If not, you must weld on the stop to increase clearance.

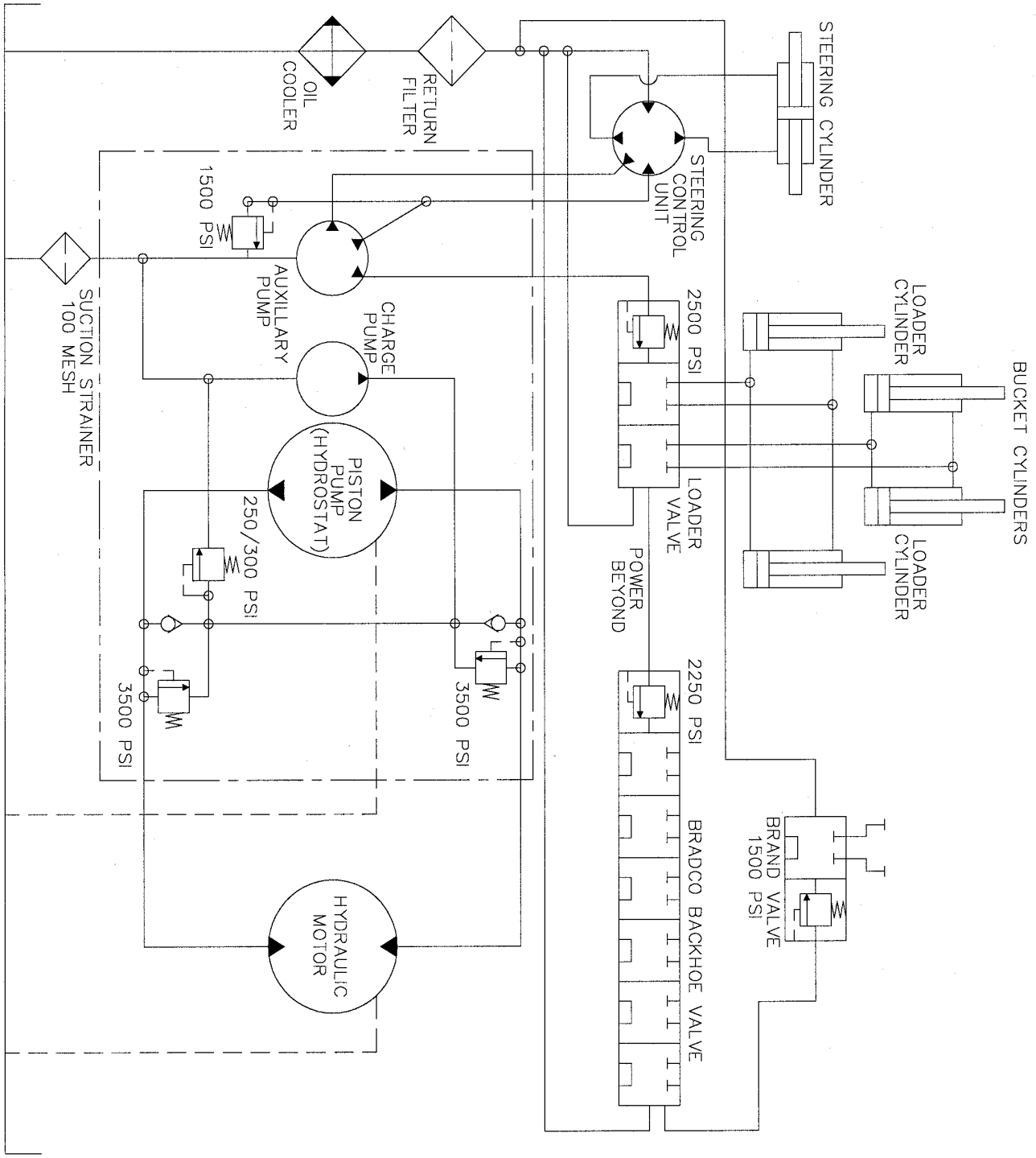
PROBLEM	POSSIBLE CAUSE	CORRECTION
SLOW LIFT OR ROLL BACK, LOSS OF POWER	Worn or malfunctioning pump	Repair or replace pump
	Stuck relief valve cartridge	Repair or replace
	Worn pump allowing system pressure to be less than specified	Repair or replace pump
SURGING OF LOADER AND BUCKET ACTIONS	Air in the system due to low level of oil, cavitation of pump, leaky fitting, pinched hose, etc.	Determine the cause and correct th problem
	Worn, or binding of , mechanical linkage	Repair or replace linkage
	Bending of linkage or cylinder rod	Repair or replace
	Loose cylinder piston	Repair or replace

LOADER LIFT AND BUCKET ROLL BACK (continued)

PROBLEM	POSSIBLE CAUSE	CORRECTION
LOADER AND BUCKET ACTIONS TOO SLOW	Cold hydraulic fluid	Warm fluid with engine at idle speed
	Engine speed too slow	Open throttle
	Oil leaking past control valve.	Repair or replace worn section
	Oil too heavy.	Use recommended oil
	Pump damaged or worn	Repair or replace pump
	Oil leaking past cylinder seals	Replace seals
	Dirty return oil filter	Replace return oil filter
	Faulty relief valve	Clean or replace relief valve
LOADER FAILS TO HOLD UP A LOAD	Broken or leaking lines	Replace defective hose and check for leaks
	Dirty hydraulic oil	Drain and refill oil, replace filter
	Oil leaking past cylinder seals	Replace seals
	Oil leaking past control valve	Repair or replace worn section
	Faulty relief valve	Clean or replace relief valve
OIL OVERHEATING	Dirty oil	Drain, refill oil, replace filter
	Partially plugged suction strainer	Drain oil, clean suction strainer, and refill with newoil
	Control valve held open too long	Return control to neutral position when not in use
	Worn pump	Replace pump
	Relief valve set too low	Reset relief valve correctly
	Oil too light for warm weather	Use recommended oil
	Engine R.P.M. too fast	Reduce throttle setting
	Damaged oil lines	Replace damaged lines
	Excessive oil flow over relief valve from poor operating techniques	Learn smoother operating techniques
	Plugged or bent oil cooler fins	Clean and/or straighten oil cooler
EXTERNAL LEAKAGE	Control valve tie bolts loose (if equipped	Torque bolts sequentially-50, 70, 90 in/lb.
	Damaged O-rings between valve sections	Replace O-rings between valve sections
	Damaged O-rings on valve spool	Repair control valve
	Cylinder seals damaged	Repair cylinder
	Damaged O-rings on valve drop check	Repair control valve
	Broken oil lines	Replace defective hoses and check for leaks
CYLINDER MALFUNCTIONING	Oil leaking past seals	Replace seals
	Faulty relief valve	Clean or replace valve
CONTROL VALVE STICKING OR WORKING HARD	Dirty valve	Clean valve
	Scored bore or bent spool	Replace valve section
	Control linkage misaligned (if equipped)	Correct misalignment—tighten sequentially:50, 70, in./lb
	Return spring broken or binding	Replace spring
	Foreign matter in spool bore	Clean bore

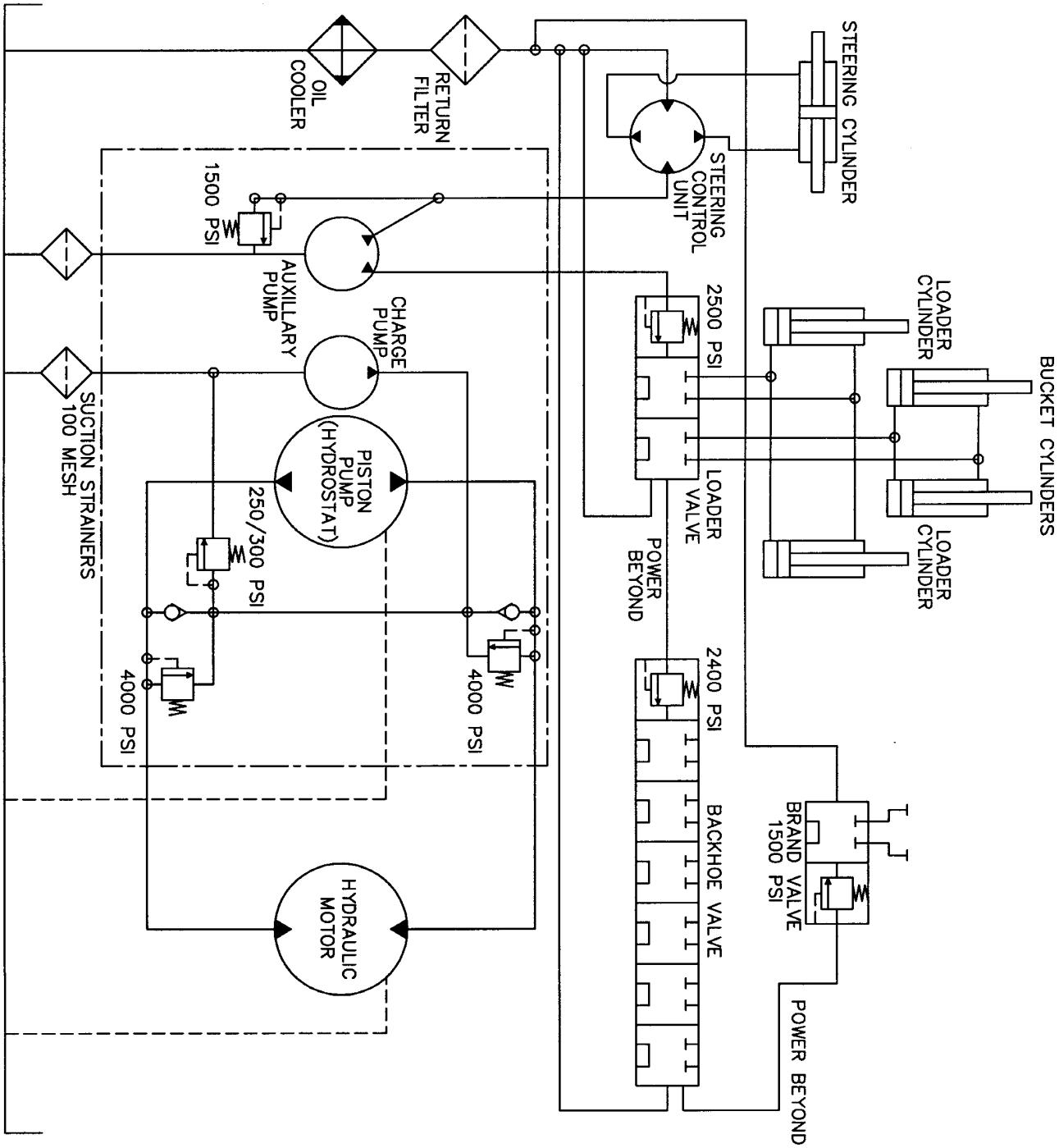
HYDRAULIC SCHEMATIC

Allmand TLB Gasoline Engine Tractors



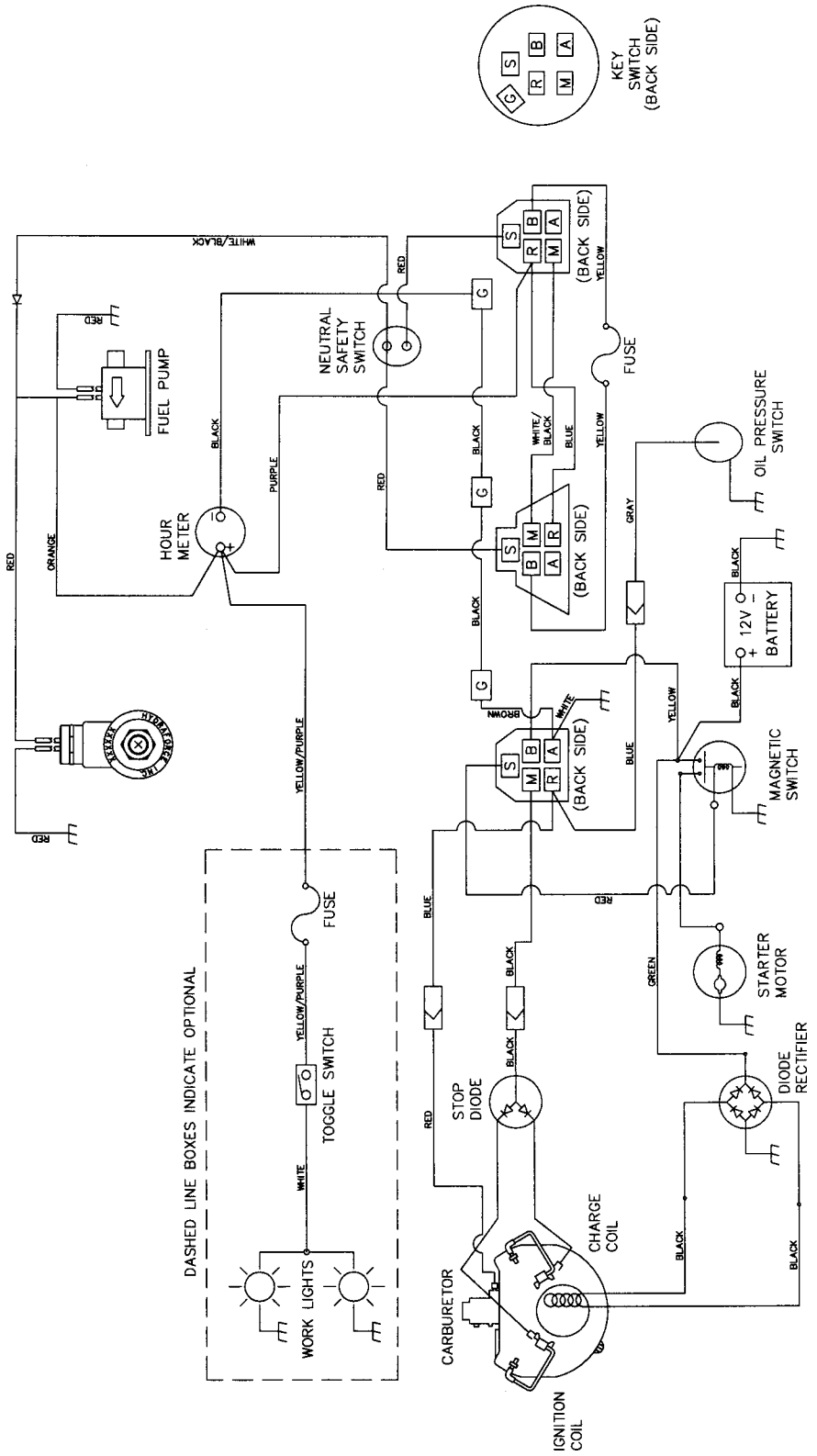
HYDRAULIC SCHEMATIC

Allmand TLB Diesel Engine Tractors



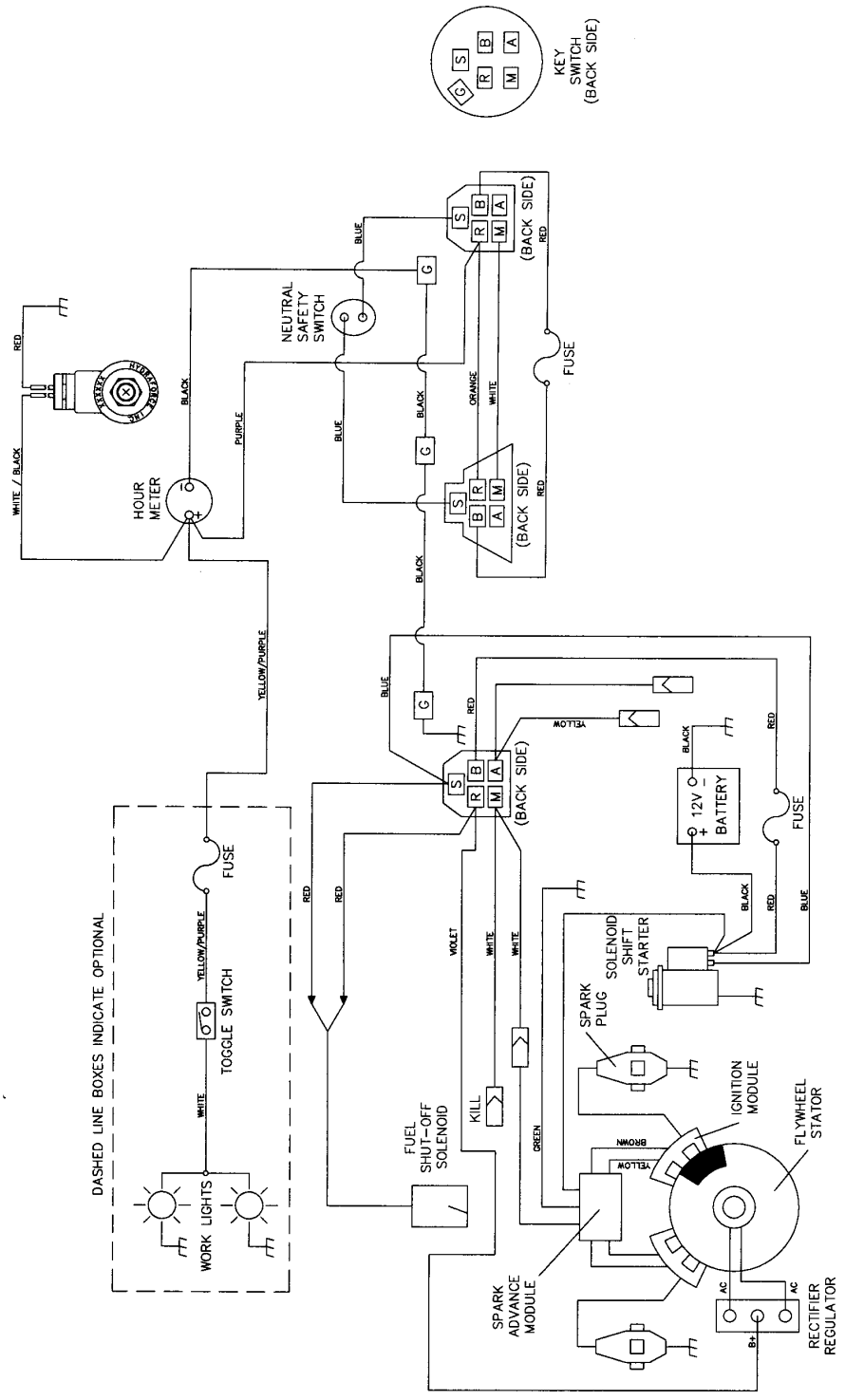
ROBIN ELECTRICAL SCHEMATIC

Allmand TLB Gasoline Engine Tractors



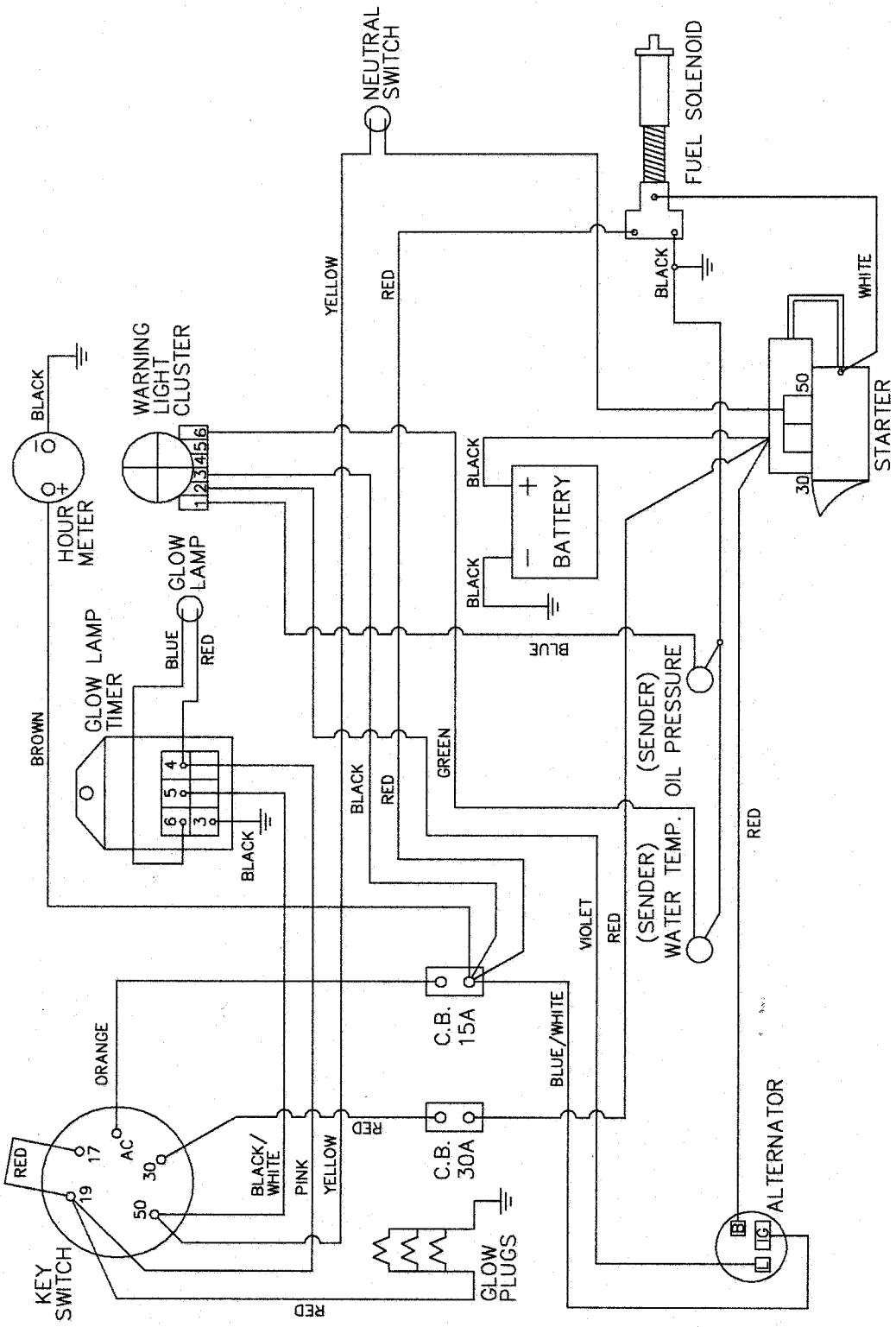
KOHLER ELECTRICAL SCHEMATIC

Allmand TLB Gasoline Engine Tractors

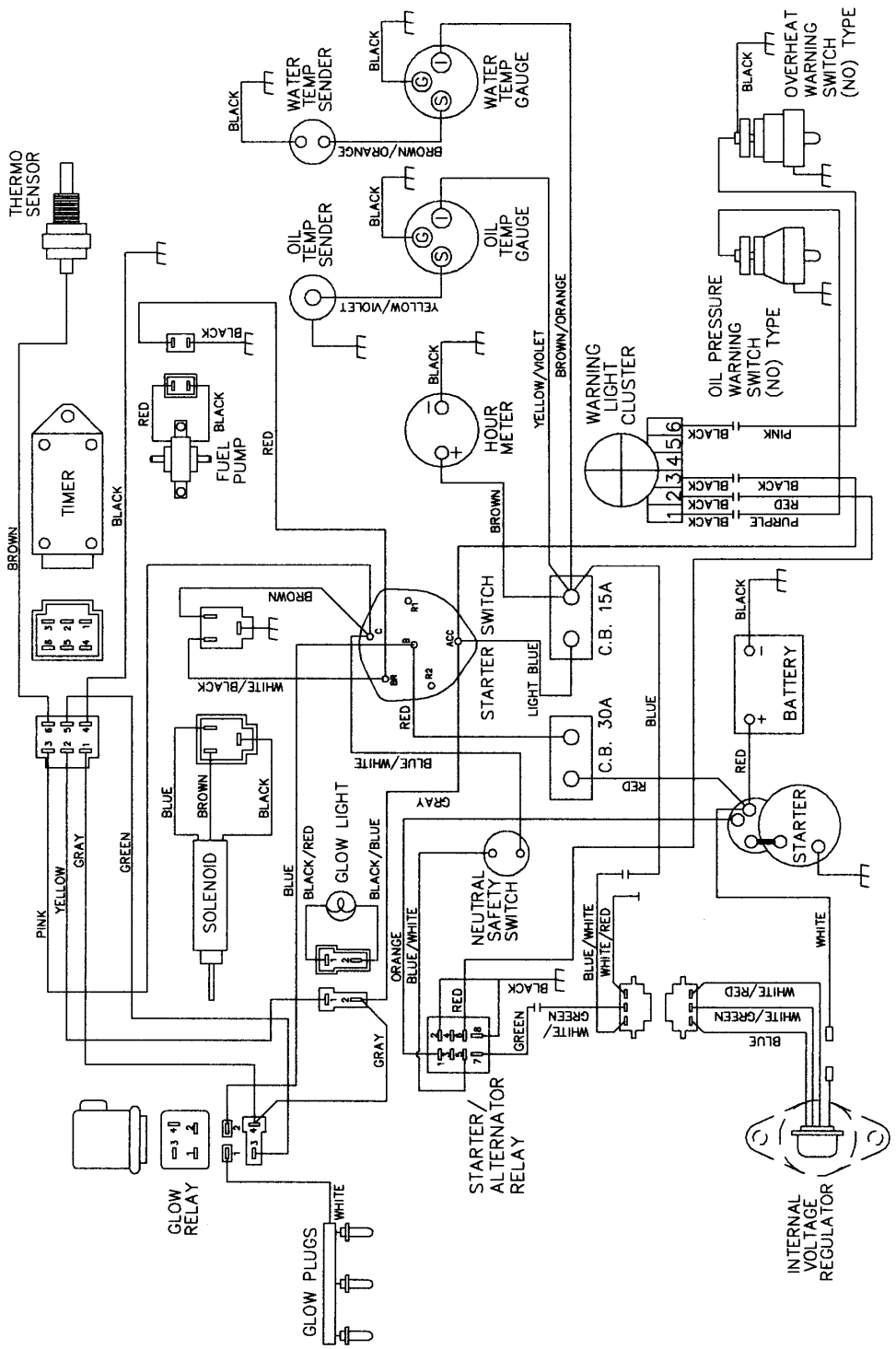


ELECTRICAL SCHEMATIC

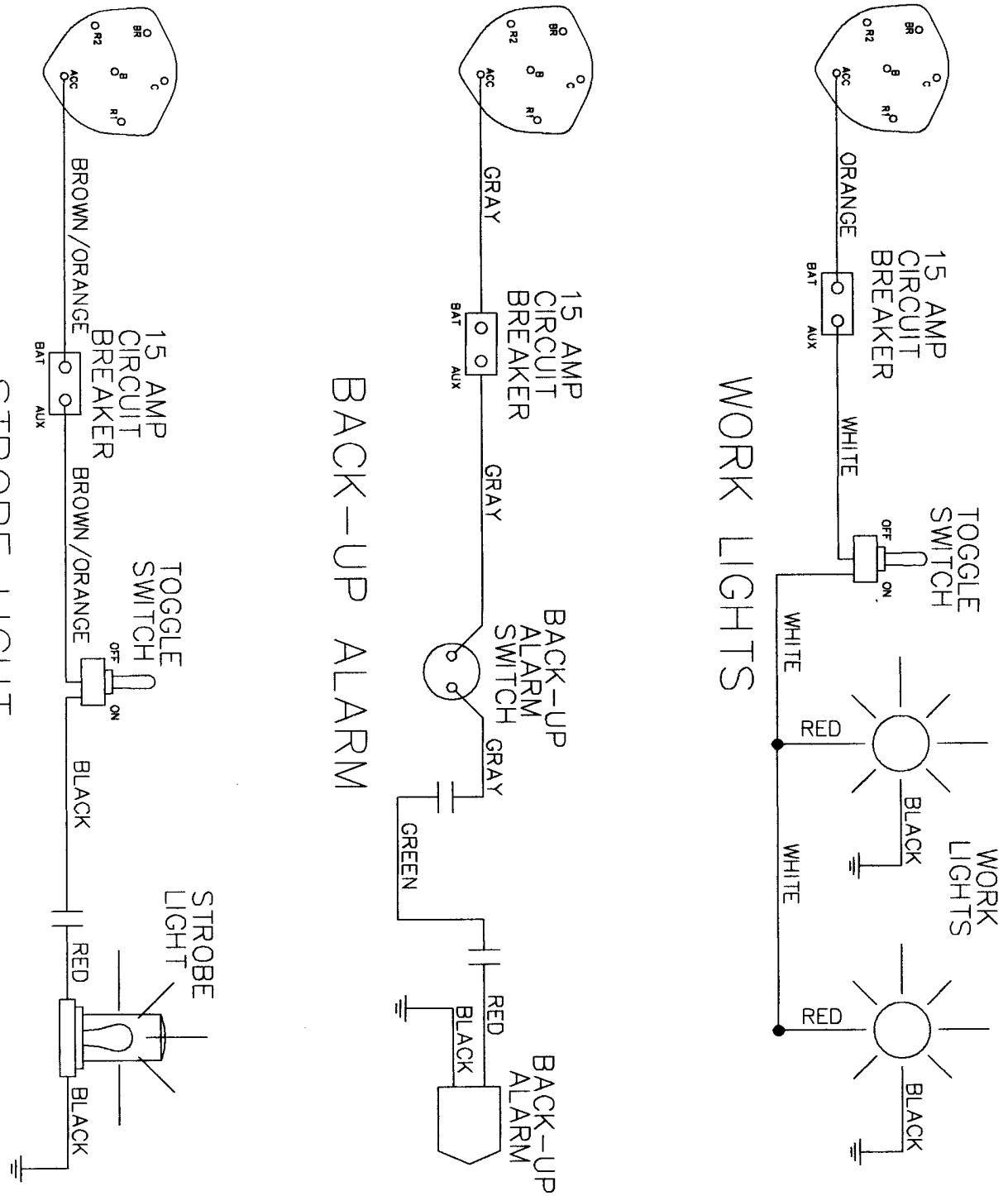
Allmand TLB Diesel Tractors Equipped with Kubota Engines



Allmand TLB Diesel Tractors Equipped with Isuzu Engines



WIRING SCHEMATIC FOR OPTIONAL EQUIPMENT



SERVICE INFORMATION

The following information has been provided to assist in making minor adjustments that are part of the routine maintenance of the **Allmand TLB**. To remain a safe and trouble free machine, it is recommended to check the following points on a regular basis.

FORWARD / REVERSE PEDAL ADJUSTMENT

NOTE: See the exploded view, on the following page for clarification;

1. Remove the floor plate and dash cover using a ½" wrench or socket. Raise the back wheels of the tractor off of the ground.

NOTE: The outriggers of the backhoe may be used to raise the rear of the tractor off of the ground. Place support stands under the tractor frame for added safety in the event a hydraulic hose were to break, allowing the tractor to possibly drop to the ground.

2. Locate wire harness near the fuel pump. Disconnect the yellow jumper wire only. This will disable the Inline Neutral Valve.

3. Locate the link rod assembly between the foot pedal arm and the hydrostatic arm. using two 9/16" wrenches, loosen the jam nuts on each end of the link rod. (The link rod is threaded right and left handed for ease of adjustment).

4. Stand clear of rear tires. Then start the engine and run it at full throttle. With the engine running, adjust link rod IN or OUT until the wheels stop moving. Tighten the jam nuts making sure the rod ends stay parallel with the link rod. Cycle the forward/reverse pedal several times to confirm neutral position.

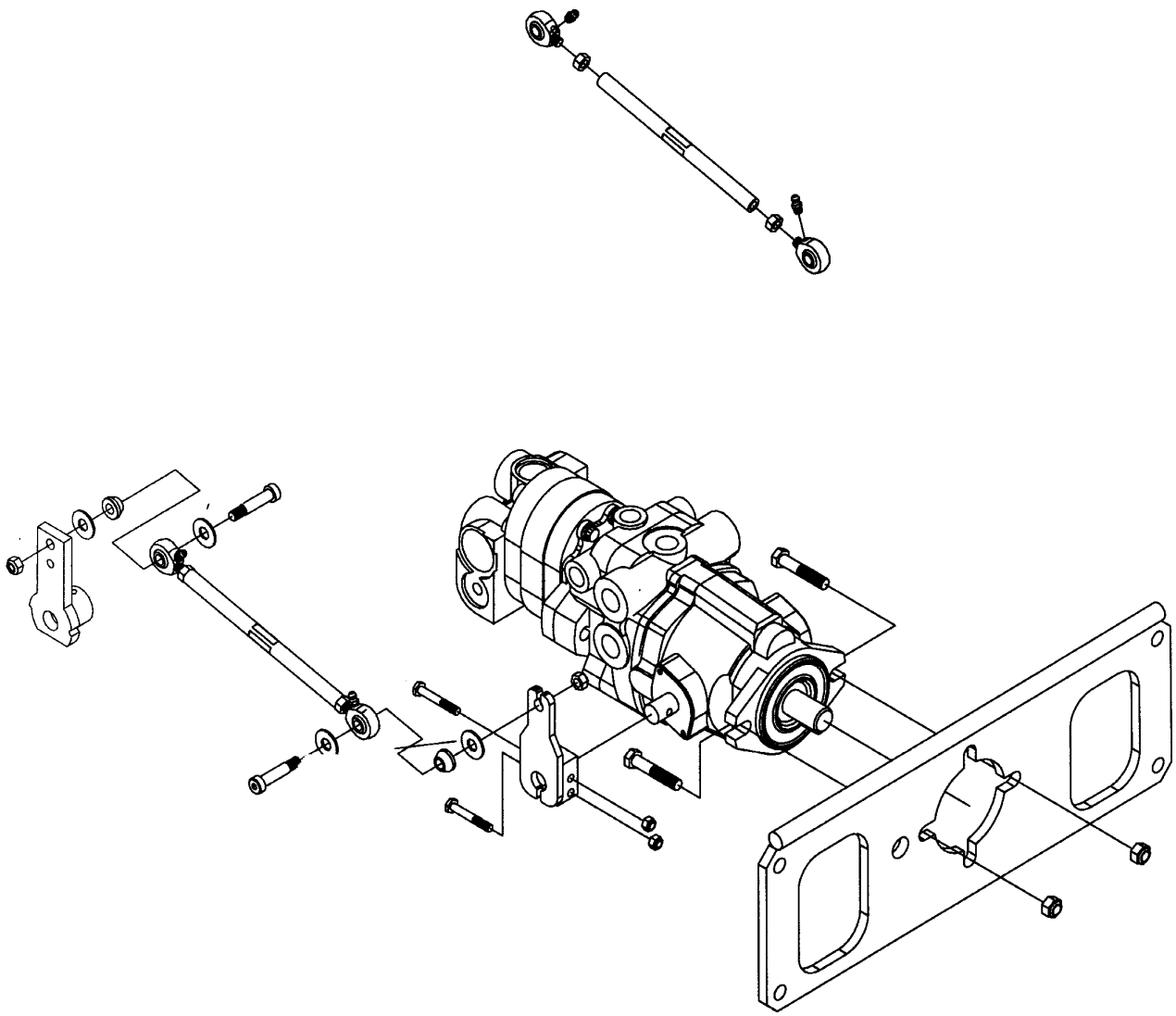
5. Reconnect the yellow jumper wire and install the floor plate and dash cover.

6. Re-install the floor plate and dash cover and lower the tractor to the ground.

NOTE: Refer to the exploded view on the following page to get a better understanding of how the parts are assembled before attempting to make any adjustments. Space is limited in this area and knowing what to look for is quite helpful.

FORWARD-REVERSE PEDAL ASSEMBLY

TLB 220, 225, and 325



PARK BRAKE ADJUSTMENT

1. Remove the stop screw, on the side of the park brake handle end cap, and turn cap clockwise to increase the brake tension.

2. Replace the stop screw.

If adjustment of the park brake handle does not increase the brake tension, adjustment at the brake band actuator is required. The following information will describe how to adjust the park brake actuator.

1. Remove the floor plate and locate the park brake assembly between the differential and the hydraulic drive motor.

2. Using a 7/8" open end wrench, loosen the top lock nut on the brake cable assembly. Using your fingers, reach under the bracket and turn the lower lock nut towards the end of the cable one complete turn of the nut.

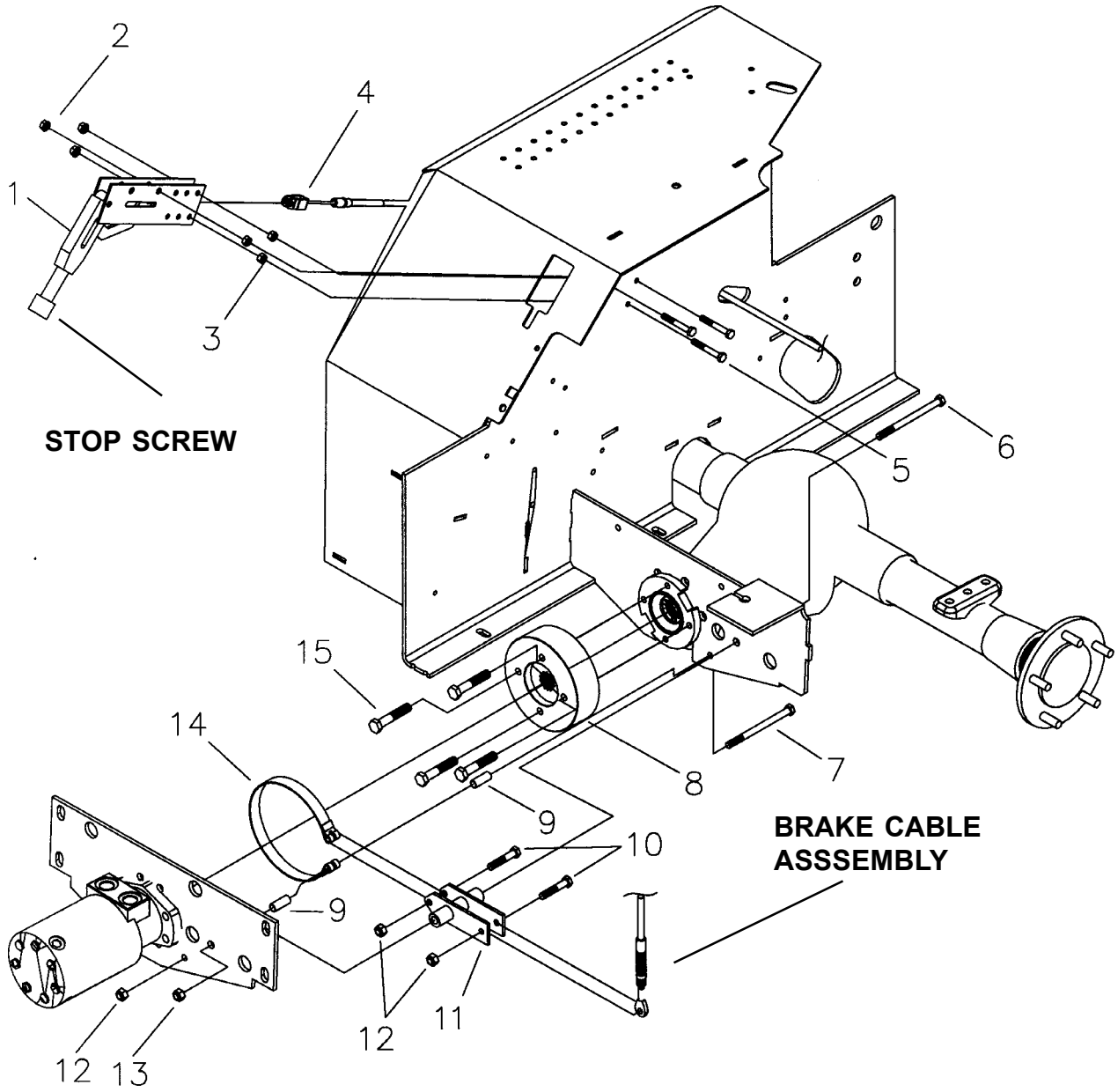
3. Tighten the top lock nut and check park brake tension. If tension is too tight, loosen the end cap on the park brake handle to fine tune to the desired amount of tension. If tension is too loose, rework step #2 until desired amount of tension is acquired.*

4. Replace floor plate.

*Refer to **the** exploded view on the following page for clarification. Helpful Hint: **Lengthening** the cable will **tighten** the park brake, **shortening** the cable will **loosen** the park brake.

PARK BRAKE ASSEMBLY

TLB 220, 225, and 325



THIS PAGE LEFT BLANK INTENTIONALLY