SERVICE MANUAL

TIGERCAT X822C/LX822C/X830C/LX830C FELLER BUNCHER

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ISSUE 1.1, MAY, 2008

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X822C-SM00-1

X822C/LX822C/X830C/LX830C Feller Buncher Available Literature

Operator's Manual ..... Part No. 29528A
Service Manual (This Manual) ..... Part No. 29529A
Parts Catalog X830C/LX830C ..... Part No. 29530A
Parts Catalog X822C/LX822C ..... Part No. 31892A

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GENERAL SAFETY PRECAUTIONS continued

Safety Hazards - Viton Seals

O-rings and other seals manufactured of Viton material (fluorine rubber) produce a highly corrosive acid (Hydrofluoric) when subjected to temperatures above. 600°f (315°c).

This contamination can have extreme consequences on human tissue since it is almost impossible to remove after contact.

The following procedures are recommended when inspecting equipment that has been subjected to high temperatures such as fire:

- Visually inspect any seals or gaskets which have suffered from heat; they will appear black and sticky.
- If these are found, **Do Not Touch!!!**
- Determine the material composition of any seals or gaskets, If fluoro-elastomer seals (Viton, fluorel, or tecmoflon) have been used, the affected area must be decontaminated before undertaking further work. Natural rubber and nitrile materials are not hazardous.
- Disposable heavy duty gloves (neoprene) must be worn and the affected area decontaminated by washing thoroughly with limewater (Calcium Hydroxide solution).
- Any cloths, residue and gloves must be safely discarded after use.

NOTE:
Burning discarded items is not recommended except in an approved incineration process where the dangerous products are treated by alkaline scrubbing.

Safety Hazards - Operating

Maintain a charged fire extinguisher on the vehicle at all times and KNOW HOW TO USE IT.

Do not carry passengers either in the cab or anywhere else on the machine. The vehicle is provided and approved with seating for the operator only.

Do not allow anyone to operate the machine who may not be physically fit or who may be under the influence of alcohol or drugs.

When moving the machine, watch that enough clearance is available on both sides and above the machine or any of its attachments. Extra clearance may be required particularly where the ground is uneven.

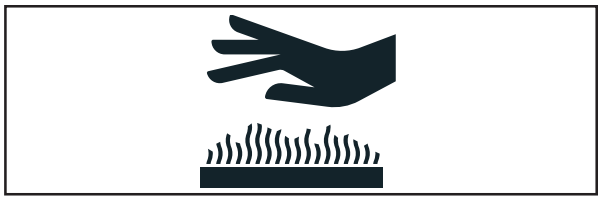
Approach with extreme caution any area where overhanging electrical power lines are present. Serious injury or death by electrocution can result if the machine or any of its attachments are not kept a safe distance from these lines.

Maintain a distance of 10 ft. (3m) between the machine or boom and any power line carrying up to 50,000 volts or less plus 1/2 inch (10mm) for each addition 1,000 volts above the 50,000 volt level.

If State/Provincial, local or job site regulations require even greater safety distances than stated above, adhere strictly to these regulations for your own protection.

If the machine must be transported, make sure that it is adequately secured to the transporting vehicle. Refer to vehicle moving instructions page in SECTION 2.

Stopping the engine immediately after it has been working under load can result in overheating and premature wear of the engine components. Reduce engine speed to LOW IDLE and let run for approximately 5 minutes to allow gradual dissipation of heat and also to reduce turbo speed. This will also prevent loss of coolant by after boil and possible hot spot damage to the engine.



Be aware when performing service and maintenance tasks that surfaces and grab handles in and around the engine and cooling system may become very hot when the engine has been running. Contact with hot surfaces may cause injury.

Comply with instructions in this manual and also your company's regulations for the operation of this machine.

Read, understand and follow all general safety precautions specified by felling head manufacturer.

WARNING

Engine exhaust, some of its constituents, and certain vehicle components contain or emit chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

SERVICING SAFETY PRECAUTIONS continued

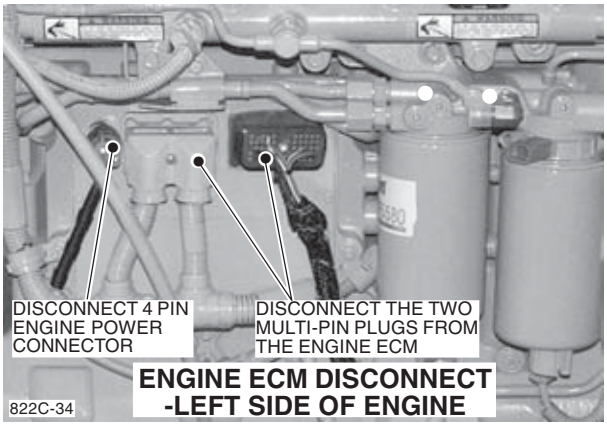
Prior to welding on any part of the machine, the repair area should be cleaned and a fire extinguisher should be made available at the welding location.

Care must be taken in attaching the welding machine grounding clamp so current does not pass through bearings, especially the swing bearing.

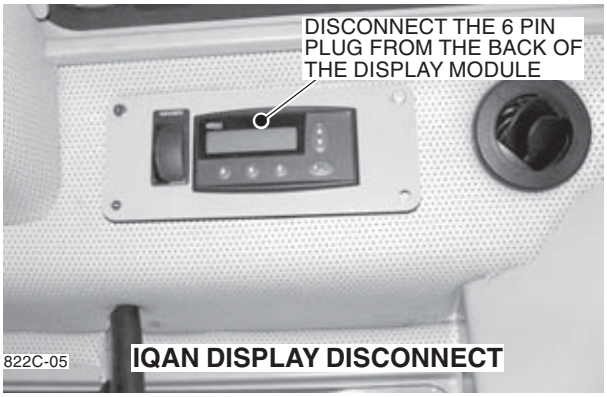
Disconnect the negative (-) battery cable from all the batteries.

This machine is equipped with sensitive electronic control equipment, **prior to welding:-**

Disconnect the multi-pin plug from the engine anti-stall controller located inside the cab, mounted on the rear electrical cover door.



Disconnect the engine ECM (Engine Control Module) by unplugging the four pin engine power connector and the two multipin connectors from the left side of the engine.



Disconnect the IQAN display **6 pin** connector and the control module **42 pin** connector.

IMPORTANT

24 VOLT

ELECTRICAL SYSTEM

DRY CHEMICAL CLEANUP PROCEDURES

Both ABC dry chemical fire extinguishers and fire suppression systems discharge a chemical powder to extinguish the fire. The chemical makeup and the small particle size of the powder as well as the force of the discharge all contribute to the fire fighting capability. These same characteristics also permit the powder to penetrate into and fully cover all components in the vicinity of the discharge.

The following are recommendations for the cleanup and neutralizing of areas exposed to dry chemical powder.

Workers performing this work should wear protective clothing, safety goggles and a fine particle dust mask to minimize their personal exposure to the dry chemical powder.

Ensure that all electrical systems have been completely de-energized prior to any cleanup.

1. In areas of the machine that remained cool and dry during the fire, the dry chemical will stay in powder form.

   Be certain to clean these areas immediately to prevent any settled residual powder from coming into contact with moisture whether through direct contact or humidity in the air.

   Remove the powder residue by blowing off with air, sweeping, dusting or vacuuming using a HEPA filter capable of trapping the small dry chemical particles. Then wipe all surfaces with a damp cloth.

2. In areas exposed to moisture, the dry chemical powder will combine with water to form a paste that is mildly acidic. Note that all surfaces covered by this dry chemical paste including electrical contacts are vulnerable to corrosive attack.

   To neutralize the acidic paste on large surfaces, spray or wash these areas with a mixture of 3 parts hot water to 1 part baking soda. Allow this mixture to stand for several minutes before rinsing with warm water. Wash the area with a mild soap and water solution. Rinse thoroughly with water. Blow-dry to remove all residual water.

   Cleaning of electrical contacts should be done using an electrical contact cleaner that has no flash or fire point and is non-corrosive and non-conductive such as CRC Contact Cleaner 2000.

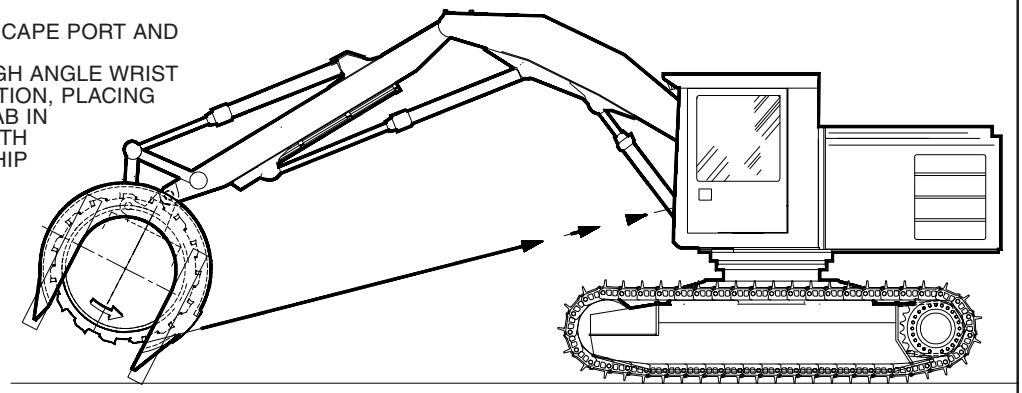
3. In areas exposed to heat during the fire, the dry chemical powder will melt forming a coating that cakes or crusts on all surfaces.

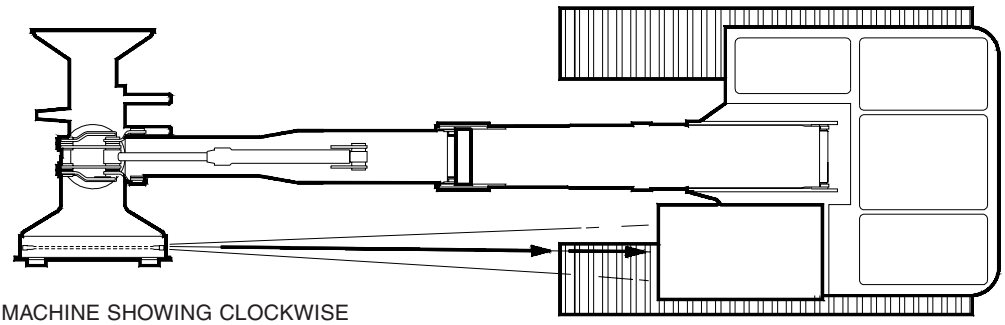
   To break down the caked dry chemical, spray or wash these areas with a 50/50 mixture of hot water and isopropyl alcohol. Allow this mixture to stand in place for several minutes.

   The caked dry chemical when exposed to moisture is also mildly acidic. Therefore when the break down procedure has been completed, follow this immediately with the neutralizing procedure as described in step 2.

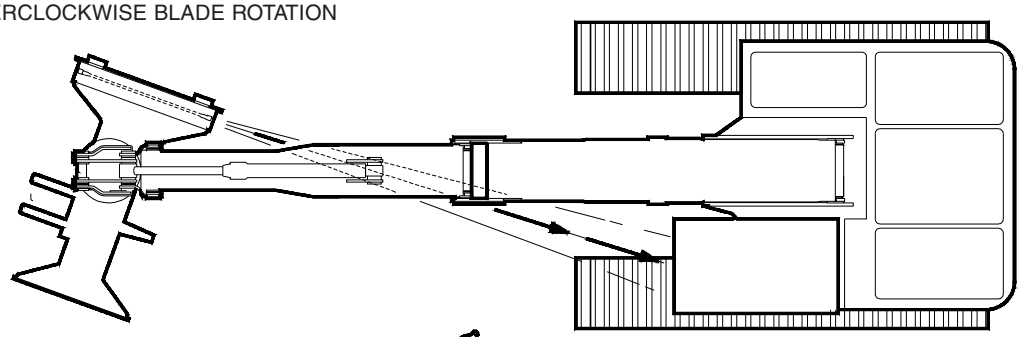
FELLING HEAD
- WITH A CHIP ESCAPE PORT AND SHORT SNOUT.
- SHOWN IN A HIGH ANGLE WRIST ROTATION POSITION, PLACING OPERATOR'S CAB IN DIRECT LINE WITH UNGUARDED CHIP ESCAPE PORT

FIGURE 7a





PLAN VIEW OF MACHINE SHOWING CLOCKWISE AND COUNTERCLOCKWISE BLADE ROTATION



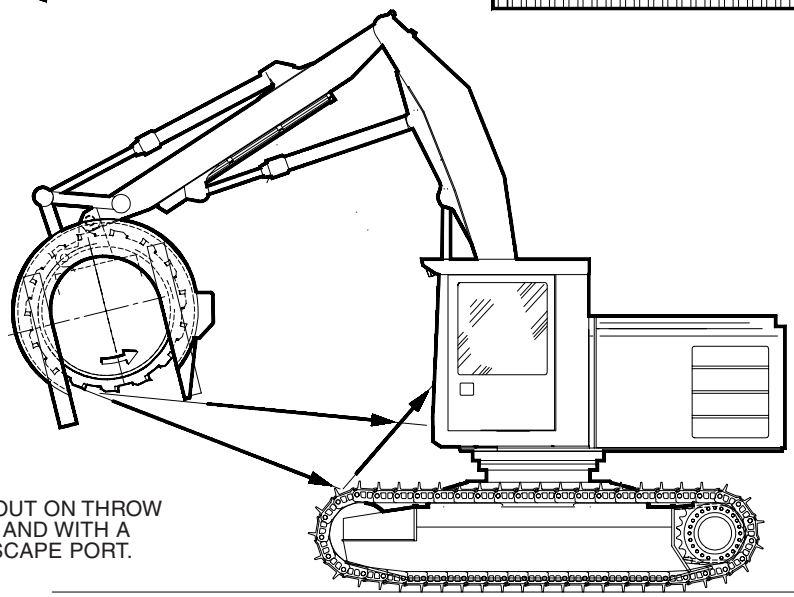


FIGURE 7b
FELLING HEAD
- WITH LONGER SNOUT ON THROW SIDE OF OPENING AND WITH A GUARDED CHIP ESCAPE PORT.

FIGURE 7: DISC SAW FELLING HEAD WITH HIGH ANGLE WRIST ROTATION CAPABILITY

TIGERCAT OIL SAMPLING PROGRAM

Using the Tigercat Advanced Oil Analysis Program on a regular basis is an excellent preventative maintenance tool.

Studies have shown that it is possible to receive a 10 to 1 payback when looking at the amount saved on repair costs to the amount invested in a scheduled oil analysis program. Some of the benefits of a sampling program include:

- Detect problems early before they become major catastrophic failures.
- Better ability to schedule downtime and forecast cost of repairs.
- Monitor maintenance schedules and practices and confirm that the required maintenance is being done on time.
- Increase used equipment value by providing proof of proper maintenance.

This Program uses the most modern technology available to analyze all oil samples. Most test results are available within 24 hours after receipt of the sample and are supplied in an easy to understand report, which calls for specific action and makes detailed recommendations. This report is available as a mailed or faxed hardcopy, sent via e-mail or can be viewed on the internet.

This program will provide Tigercat machine owners access to an Advanced Oil Analysis Program for all major machine components including Engines, Hydraulic Circuits, Axles, Final Drives, Gearboxes, etc.

800 Series Models Recommended Testing Schedule

Location	First Sample	Follow-up Samples
Hydraulic Oil	100 Hours	Every 1000 Hours or 6 Months
Swing Drive Gearbox (if applicable*)	100 Hours	Every Oil Change (250 Hours or 1.5 Months)
Track Drive Gearboxes	100 Hours	Every 1000 Hours or 6 Months
Pump Drive Gearbox (if applicable)	100 Hours	Every 1000 Hours or 6 Months

* Note that swing drive gearbox oil sampling applies only to machines that use gear oil in the swing drive gearbox.

Tigercat Oil Analysis Kits are available from your Tigercat dealer parts department. If required, arrangements can also be made with your Tigercat dealer to supply and perform all of the required follow-up oil samples.

Refer also to OIL SAMPLE COLLECTION PROCEDURES in THIS SECTION for sample valve and drain plug locations.

TIGERCAT OIL ANALYSIS KITS

Each kit includes a Pre-paid Sample Bottle and Sample Information Form. Pre-printed mailing labels are also included to ensure all samples are quickly returned directly to the lab for immediate analysis and results within 24 hours of receipt.

The same type of sample bottle can be used for all types of oil testing including:

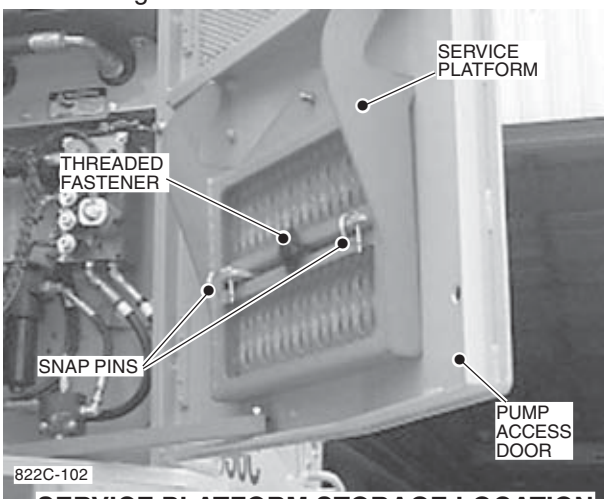
Hydraulic Circuits, Final Drives, Axles, Gearboxes, Engines, etc.

To ensure accurate and meaningful results are obtained, each kit also includes detailed instructions on how properly collect, prepare and ship the oil samples.

Contact your Tigercat Dealer Parts Department to order Kits.

SERVICE PLATFORM (IF EQUIPPED)

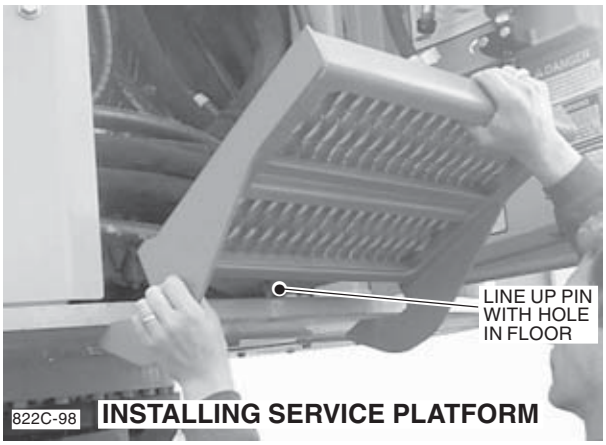
The service platform is used on levelling machines (LX830C) which are not equipped with counterweights.



SERVICE PLATFORM STORAGE LOCATION

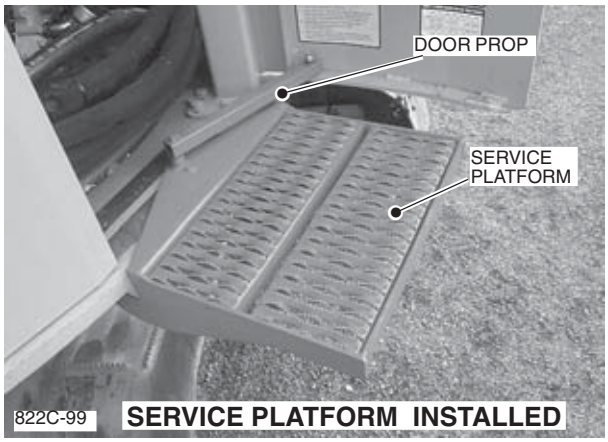
The service platform is stored on a bracket on the pump door (RH rear). The platform is secured in its storage location with two snap pins and a threaded fastener.

The service platform is used for service and maintenance access to the hydraulic tank compartment (LH rear door).



INSTALLING SERVICE PLATFORM

Install the platform as shown. Tilt platform and line up the pin on the bottom of the platform with the hole in the floor of the hydraulic tank compartment. Lower the platform into place and secure the door prop.

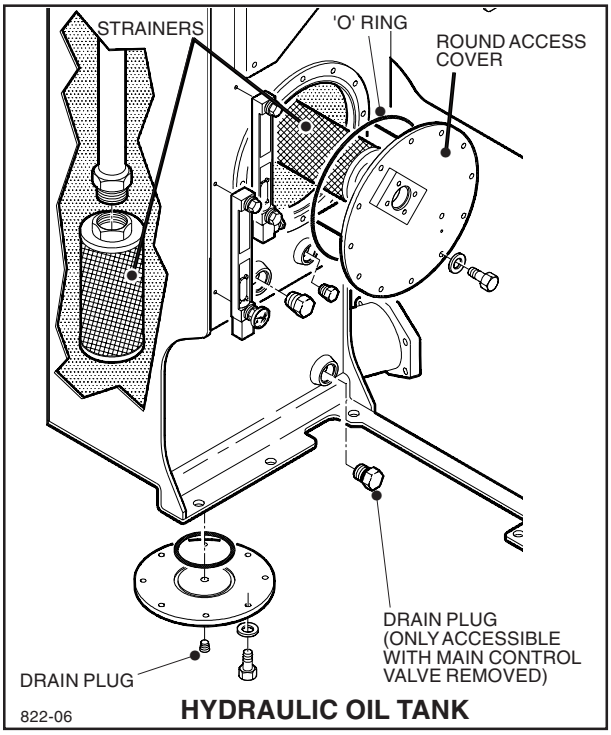


SERVICE PLATFORM INSTALLED

When mounting or dismounting the machine always use the 3 point technique; use one hand with 2 feet or 2 hands with 1 foot.

When not in use always secure the service platform in its storage location.

HYDRAULIC OIL RETURN STRAINERS/DIFFUSERS



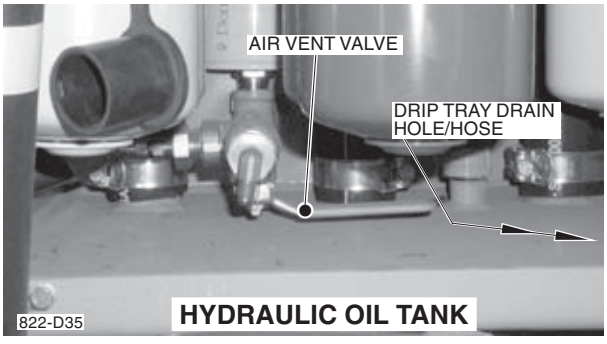
There are four reusable strainers/diffusers housed in the hydraulic tank, one on the case drain return port and three on the return tubes. The strainers should be inspected whenever the hydraulic tank is drained. See SCHEDULED MAINTENANCE in THIS SECTION.

For service and replacement intervals see SERVICE AND LUBRICATION CHART in THIS SECTION.

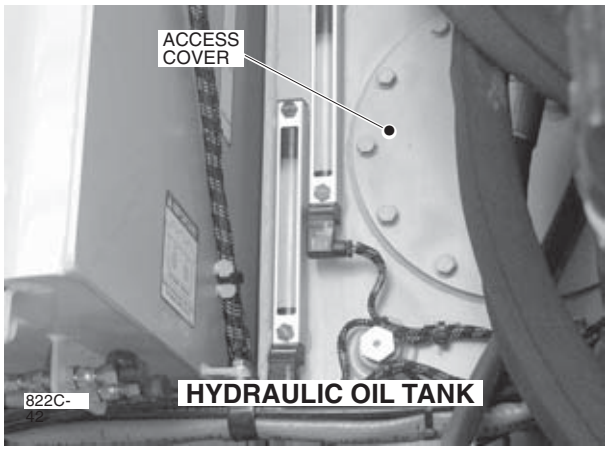
CHANGING OR CLEANING THE STRAINER:

This should be performed in the event of a pump failure or hydraulic oil contamination.

1. Park machine on level ground with felling head resting on the ground.
2. Stop engine.
3. Open rear left enclosure door fully and install safety strut.



4. Wearing face protection, release air from the hydraulic reservoir by opening the AIR VENT VALVE.
5. Turn BATTERY DISCONNECT SWITCH to the OFF position. Always install a “DO NOT START ENGINE” sign on the operator’s cab door and in the engine compartment when making repairs to the machine.
6. Drain the hydraulic tank via a drain plug in the bottom of the tank. Access to this plug is by removing a cover plate on the under side of the upper frame.
7. Disconnect the wires from the two sensors and remove the case drain hose located on the round access cover.



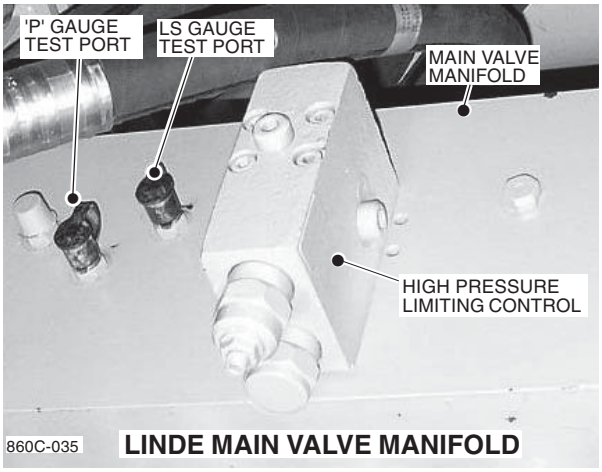
8. Remove the round access cover plate and “O”-ring.
9. Before removing the strainers, clean any debris from the bottom of the tank and wipe it clean.
10. Remove the four hydraulic oil return strainers using the hex on the end of strainer. Carefully clean the strainers (they may be damaged by rough handling).
11. Check for a **buildup of foreign materials** where the strainers screw onto the pipes and cover plate.
12. Reinstall the strainers using the hex on end. Note: Repair any burrs created when removing the strainer before reinstalling.
13. Reinstall access cover plate with a NEW “O” ring.
14. Connect sensor wires to sensors on access cover.
15. Refill and check for leaks.
16. Close air vent ball valve.

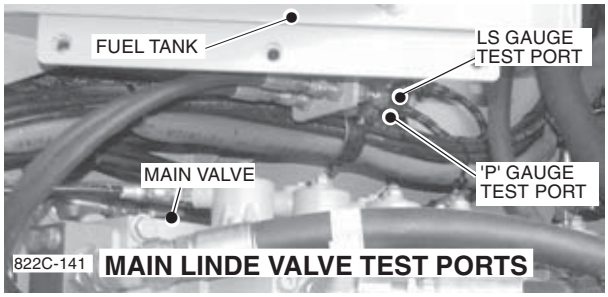
Weights of Commercial Wood

Species	kg/m3	lb/ft3
Alder, Red	737	46
Ash, White	769	48
Aspen, Quaking	689	43
Bald Cypress	817	51
Basswood, American	673	42
Beech, American	865	54
Birch, Paper	801	50
Birch, Yellow	929	58
Cedar, Alaska	577	36
Cedar, Incense	721	45
Cedar, Northern White	449	28
Cedar, Port-Orford	897	36
Cedar, Western Red	433	57
Cherry, Black	721	45
Cottonwood, Eastern	785	49
Douglas Fir, Coast	881	55
Douglas Fir, Inland North	577	36
Elm, American	865	54
Fir, Alpine	449	28
Fir, Balsam	721	45
Fir, Nobel	481	30
Fir, Red	769	48
Fir, Silver	577	36
Fir, White	753	47
Gum, Black	721	45
Gum, Blue	1121	70
Gum, Red	801	50
Gum, Tupelo	897	56
Hemlock, Eastern	801	50
Hemlock, Western	657	41
Hickory, Pecan	993	62
Hickory, True	1009	63
Larch, Western	769	48
Locust, Black	929	58
Magnolia, Cucumber	785	49

Species	kg/m3	lb/ft3
Maple, Big Leaf	753	47
Maple, Black	865	54
Maple, Red	801	50
Maple, Silver	721	45
Maple, Sugar	897	56
Oak, Black	1009	63
Oak, Chestnut	977	61
Oak, Red	1009	63
Oak, Red, Swamp	1073	67
Oak, Swamp Chestnut	1041	65
Oak, White	993	62
Oak, White, Swamp	1105	69
Pine, Jack	801	50
Pine, Loblolly	993	62
Pine, Lodgepole	625	39
Pine, Long Leaf	993	62
Pine, Norway, Red	673	42
Pine, Short Leaf	993	62
Pine, Slash	993	62
Pine, Sugar	817	51
Pine, Western Yellow	721	45
Pine, White-Western	561	35
Pine, White-Eastern	577	36
Poplar, Yellow	609	38
Redwood	801	50
Spruce, Black	513	32
Spruce, Engleman	625	39
Spruce, Red	545	34
Spruce, Sitka	529	33
Spruce, White	545	34
Sweetgum	801	50
Sycamore, American	833	52
Tamarack	753	47
Walnut, Black	929	58
Willow, Black	801	50

Note: *The values shown here are green weights.*





The pump is protected by a high pressure limiting control which is attached to the main control valve manifold. Refer to HIGH PRESSURE LIMITING CONTROL in THIS SECTION.

ATTACHMENT PUMP

The attachment pump is a variable displacement piston type. For detailed information on this pump, refer to SECTION 18 of THIS MANUAL.

SAW PUMP

For the operation and adjustments of this pump refer to SECTION 17 of THIS MANUAL.

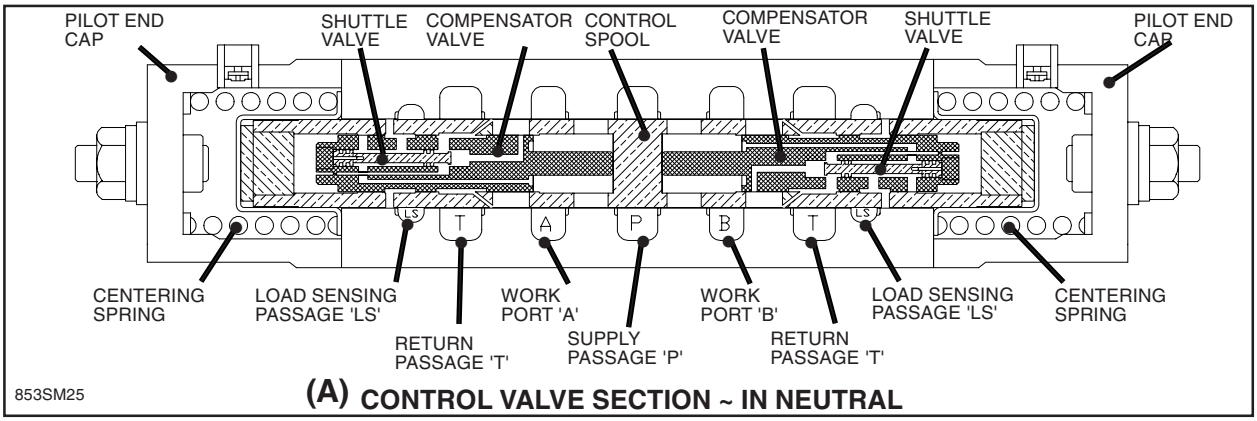
CHARGE/PILOT SUPPLY & FAN PUMP

This tandem gear pump provides pilot supply oil, charge pressure to both track drive motors and pressure to the cooling fan.

For operation of the charge/pilot supply function refer to SECTION 5 and SECTION 11 in THIS MANUAL. For operation of the cooling fan function SECTION 10 of THIS MANUAL

CONTROL VALVE SPOOL OPERATION

To achieve load sensing compensation, each control spool has two compensator valves and two LS check valves. These compensator valves can be either in the form of a shuttle valve or a ball, depending on the function being controlled.

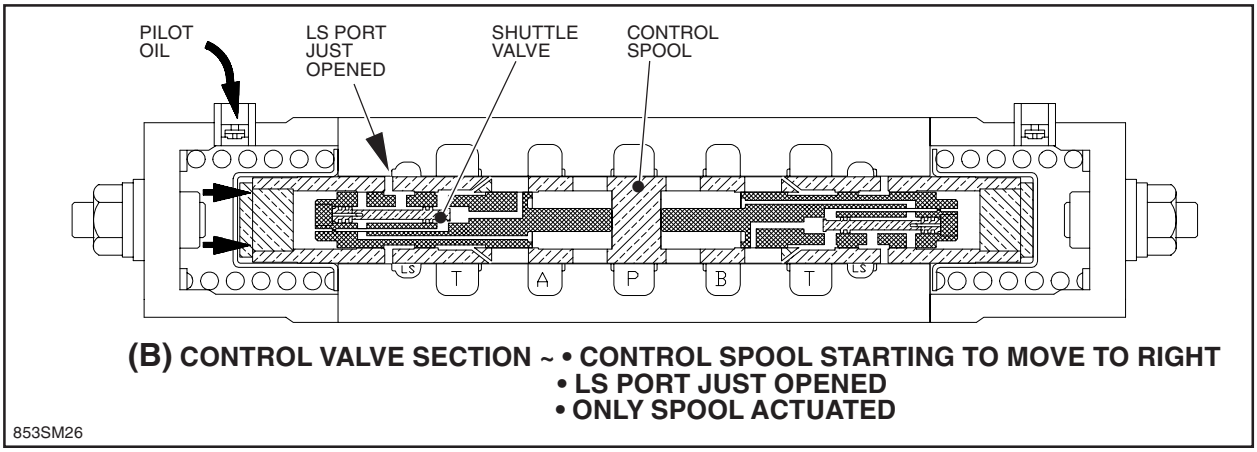


(A) CONTROL VALVE SECTION ~ IN NEUTRAL

(A) Each work port (A & B) has a compensator valve and shuttle valve. Each valve section also has two return passages (T) and two load sensing passages (LS). Each valve section has only one supply passage (P).

With the control valve spool held in neutral by the centering springs in both pilot caps, the pump discharge is blocked. Therefore, the control valves are ***closed centre***. Pump discharge, work port, return, and load sensing passages are all blocked by the spool. Oil in the work ports is trapped.

With all control valve spools in neutral, pump discharge or "standby" oil pressure is approximately 400-600 psi.



(B) CONTROL VALVE SECTION ~ • CONTROL SPOOL STARTING TO MOVE TO RIGHT
• LS PORT JUST OPENED
• ONLY SPOOL ACTUATED

(B) Whenever a single function is operated, pilot oil flows to a control valve end cap. Pilot oil will start to move the spool against the centering spring on the opposite end of the spool. The load sensing port (LS) is the first port to open. When the LS port is opened, the shuttle cavity is at LS pressure. Since this is the first function being operated, there is no LS pressure in the manifold and the shuttle does not move.

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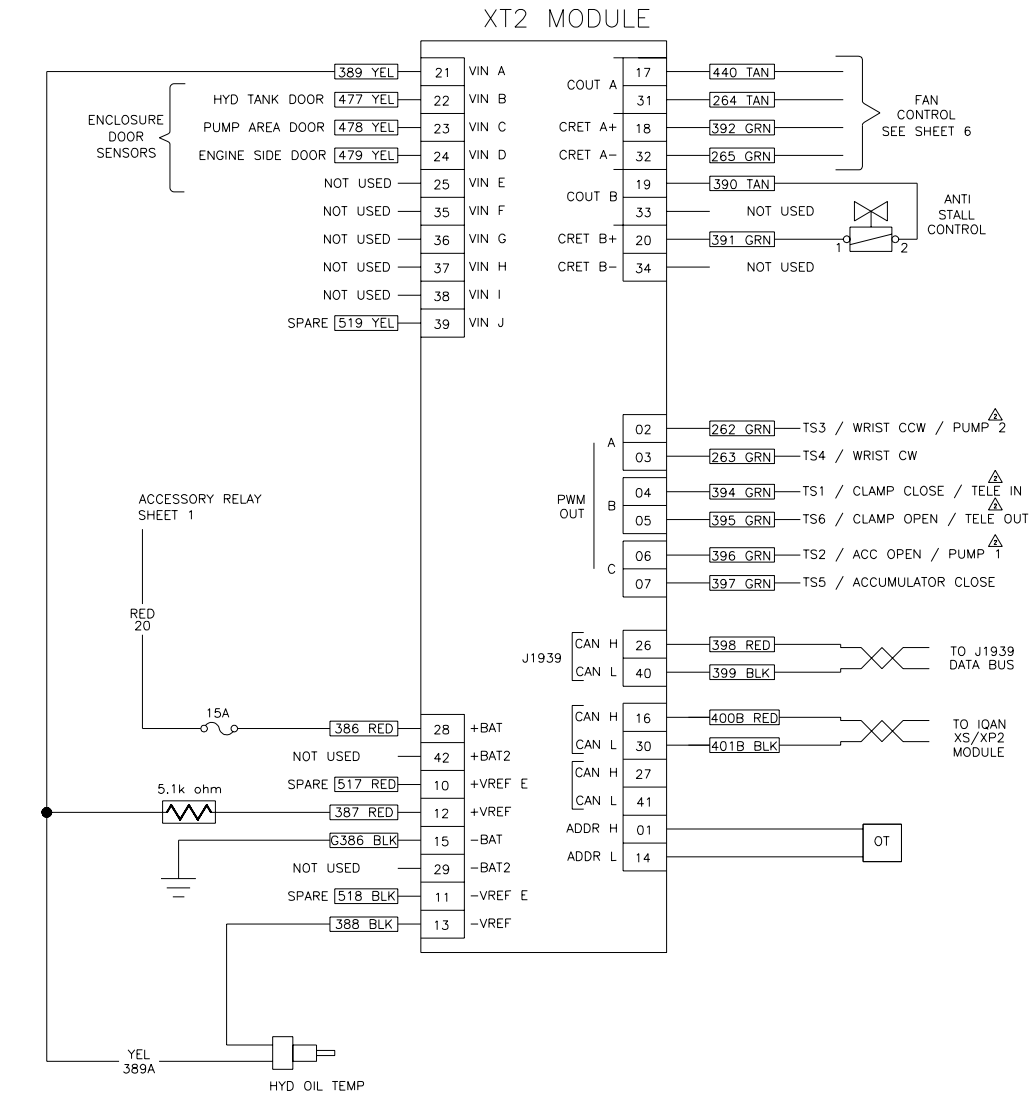
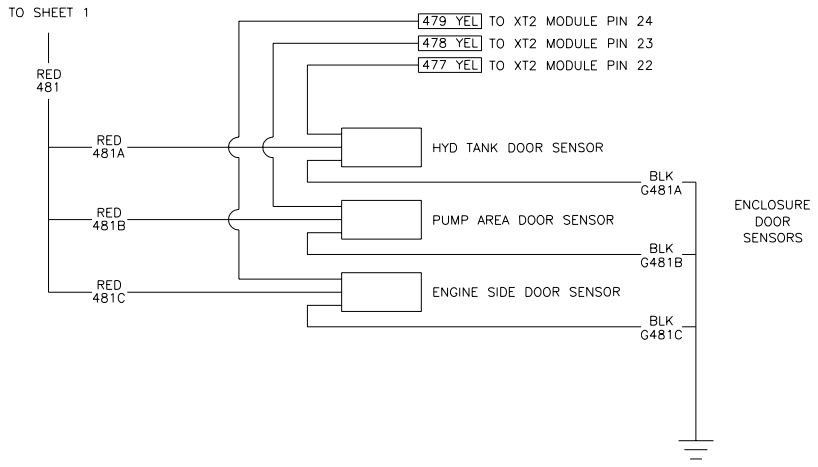




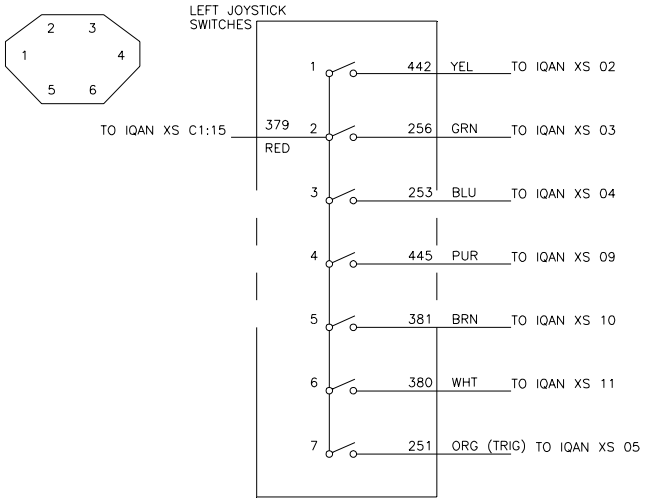
SERIAL NUMBERS 822*1001 TO 822*1100
830*1001 TO 830*1100

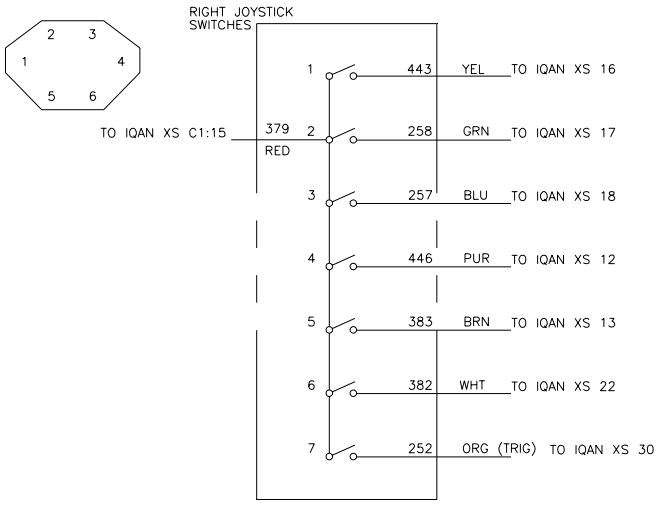
SHEET 9 OF 12

32206BS9R2

MACHINE ELECTRICAL SCHEMATIC DIAGRAM

TIGERCAT 6 BUTTON JOYSTICKS : NOT APPLICABLE TO ALL MACHINES





SERIAL NUMBERS 822*1101 AND UP
830*1101 AND UP
SHEET 7 OF 12

34430BR1S7

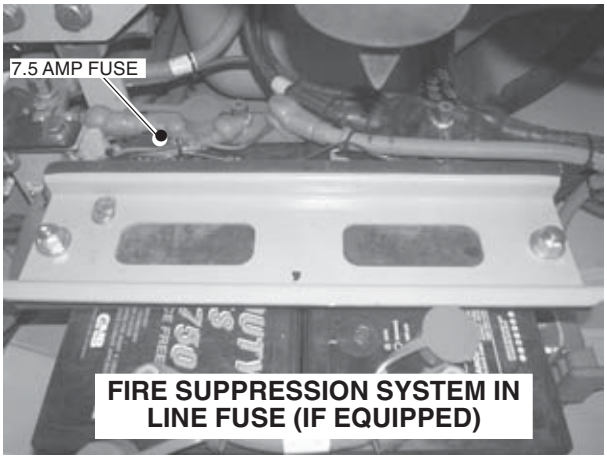
MACHINE ELECTRICAL SCHEMATIC DIAGRAM

Another electrical box is located in the engine compartment at the right rear of the engine beside the battery box.

Two **125 amp**, one **40 amp** and four **60 amp** fuses are installed ahead of the system circuit fuses and are there to prevent major damage to the electrical systems of the machine in the event of a short circuit in any of these switched power feed lines.

Each circuit on the machine is further protected against current overload by individual circuit fuses.

A separate **60 amp** fuse provides unswitched power for battery disconnect relay and service lights.

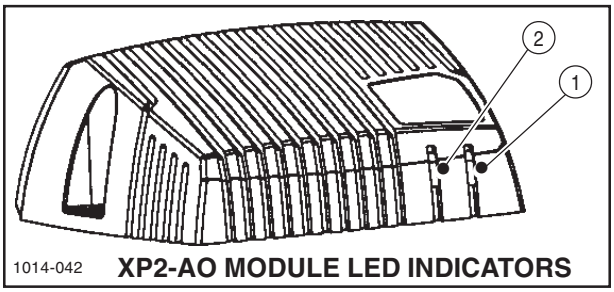


FIRE SUPPRESSION SYSTEM IN LINE FUSE (IF EQUIPPED)

A **7.5 amp** in-line fuse protects the fire suppression system when an AMEREX fire suppression system is installed. This fuse is located in the fire suppression power lead from the battery.

If a fuse “blows” it should be replaced with a fuse of the same amperage rating. If the fuse "blows" again, the circuit in question must be inspected for a possible short circuit.

XP2-A0 OPTIONAL MODULE



XP2-AO MODULE LED INDICATORS

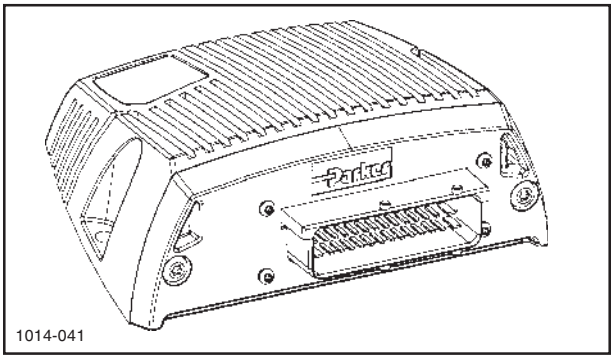
XP2-A0 MODULE LED INDICATORS

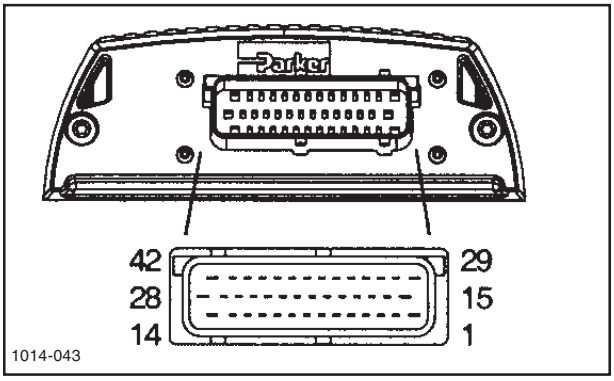
1. Supply Voltage LED. LED with green light ON indicates supply voltage is ON. LED OFF indicates supply voltage is OFF.
2. Status indicator LED. LED yellow flashing light indicates status is correct.

   LED flashing red light indicates error status as follows:

   - One flash indicates fault on inputs/outputs or that supply voltage is to low or to high.
   - Two flashes in a row indicates that the internal temperature of the unit is to high or to low.
   - Three flashes in a row indicates that the fault is related to the CAN-bus.
   - Four flashes in a row indicates an internal fault on the hardware of the unit.
   - Five flashes in a row indicates that the fault is related to the address.
   - Continuous flashing indicates the fault is related to software.

Error code	Blink (red light)
I/O and voltage errors	
Low/High temperature	
CAN error	
Hardware error	
Address error	
Software error	





XP2-A0 MODULE WIRING PIN ASSIGNMENT

NOTE: Refer to the XT2-A0 ENGINE MODULE Wiring Schematic and Electrical Schematics in this section for detailed pin and wiring assignment.

4. MEASURE MENU OPERATION

Measurements can be viewed for the following channels:

822C/L830C/X822C/LX822C/X830C/LX830C FELLER BUNCHER

INPUTS				
TYPE	SCREEN MESSAGE	FUNCTION	ACTIVATING CONTROL/SENSOR/SWITCH	LOCATION
VOLTAGE IN	Left JS Button 1	Wrist CCW	Left joystick button 1*	Left Joystick
VOLTAGE IN	Level Left	Level Left	Left joystick button 2*	Left Joystick
VOLTAGE IN	Level Right	Level Right	Left joystick button 3*	Left Joystick
VOLTAGE IN	Left JS Trigger	Wrist CCW	Left joystick trigger *	Left Joystick
VOLTAGE IN	Right JS Button 1	No factory standard function	Right joystick button 1*	Right Joystick
VOLTAGE IN	Level Fore	Level forward	Right joystick button 2*	Right Joystick
VOLTAGE IN	Level Rear	Level back	Right joystick button 3*	Right Joystick
VOLTAGE IN	Right Js Trigger	Wrist CW	Right joystick trigger *	Right Joystick
VOLTAGE IN	OL Leveller (822C/L830C)	XP2-A0 module enable	XP2-A0 module	XP2-A0 module
VOLTAGE IN	XL Leveller (LX830C)	XP2-A1 module enable	XP2-A1 module	XP2-A1 module
VOLTAGE IN	Hydraulic Oil Temp		Hydraulic Temperature Sensor	Hydraulic Tank
VOLTAGE IN	Hydraulic Tank Door		Hydraulic Tank Door Sensor	LH Rear Door
VOLTAGE IN	Pump Door		Pump Door Sensor	RH Rear Door
VOLTAGE IN	Engine Side Door		Engine Side Door Sensor	Engine Side Door
DIGITAL IN	Left JS Button 4	No factory standard function	Left joystick button 4*	Left Joystick
DIGITAL IN	Left JS Button 5	Accumulator Arm OPEN	Left joystick button 5*	Left Joystick
DIGITAL IN	Left JS Button 6	Accumulator Arm CLOSE	Left joystick button 6*	Left Joystick
DIGITAL IN	Right JS Button 4	Wrist CW	Right joystick button 4*	Right Joystick
DIGITAL IN	Right JS Button 5	Clamp arm CLOSE	Right joystick button 5*	Right Joystick
DIGITAL IN	Right JS Button 6	Clamp arm OPEN	Right joystick button 6*	Right Joystick
DIGITAL IN	Pilot System ON	Pilot on switch signal	Pilot system ON (reset) switch	Rear Control Panel
DIGITAL IN	Saw System On (optional)	Optional Intermittent Saw Switch	Saw switch*	Rear Control Panel
DIGITAL IN	Air Conditioner ON	A/C ON signal	Air conditioner ON/OFF switch	Rear Control Panel
DIGITAL IN	Fan Purge Switch	Fan clean cycle	Cooling Fan Switch - CLEAN position	Rear Control Panel
DIGITAL IN	Fan Override Switch	Fan full on (override)	Cooling Fan Switch - FULL ON position	Rear Control Panel
DIGITAL IN	Gauges	IQAN menu toggle	Menus Switch	Next to IQAN MDM Control Module
DIGITAL IN	Fan Service Mode	Service Mode (fan rotation)	Service Mode Switch	Instrument Panel

OUTPUTS				
TYPE	SCREEN MESSAGE	FUNCTION	CONTROL ACTIVATED	LOCATION
CURRENT OUT	Right Level Cylinder	Right Level Cylinder Control	Levelling control valve right cylinder (+extend/-retract)	Pump compartment
CURRENT OUT	Left Level Cylinder	Left Level Cylinder Control	Levelling control valve left cylinder (+extend/-retract)	Pump compartment
CURRENT OUT	OC Fan Prop. (822C/L830C)	Fan speed	Fan Control (Open Loop)	Fan Control (Open Loop)
CURRENT OUT	CC Fan Prop. (LX830C)	Fan speed and direction	Fan Control (Closed Loop)	Pump compartment
DIGITAL OUT	A/C Cut Out	A/C Off	A/C Off Relay	Relay panel in cab
DIGITAL OUT	Fan Reverse (822C/L830C)	Fan clean cycle	Fan Control (Open Loop)	Fan Control (Open Loop)
DIGITAL OUT	SAW EXTEND (optional)	Optional intermittent saw	Attachment control - See manufacturer's manual*	
DIGITAL OUT	Door Sensor Light	Warning light	Door/Roof Open warning light	Instrument panel
PWM OUT	Wrist-Attachmt 3	Wrist rotate CW/CCW	Pilot manifold	Hydraulic tank compartment
PWM OUT	Clamp- Attachmt 1	Clamp Arm OPEN/CLOSE	Pilot manifold	Hydraulic tank compartment
PWM OUT	Accum-Attachmt 2	Accumulator Arm OPEN/CLOSE	Pilot manifold	Hydraulic tank compartment
PWM OUT	SAW BAR STD	Optional Intermittent Saw	Intermittent saw extend/retract solenoids *	
PWM OUT	SAW BAR AUTO	Optional Intermittent Saw	Intermittent saw extend retract solenoids *	

* **NOTE:** Activating control refers to factory installed machine functions and controls. It does not take into account any changes or modifications made after shipment. Verify all functions before servicing or operating this machine.

822C L830 LX830C MEASURE INPUTS-OUTPUTS.XLS 08/07

Note also an exception to the rule: 822C/830C series Feller Buncher programs contain information for all 822C/830C models including module programming for:

Module: XP2-A0 OL Leveler - This is the open loop leveller programming. This module is used only on the L822C, L830C and LH830C.

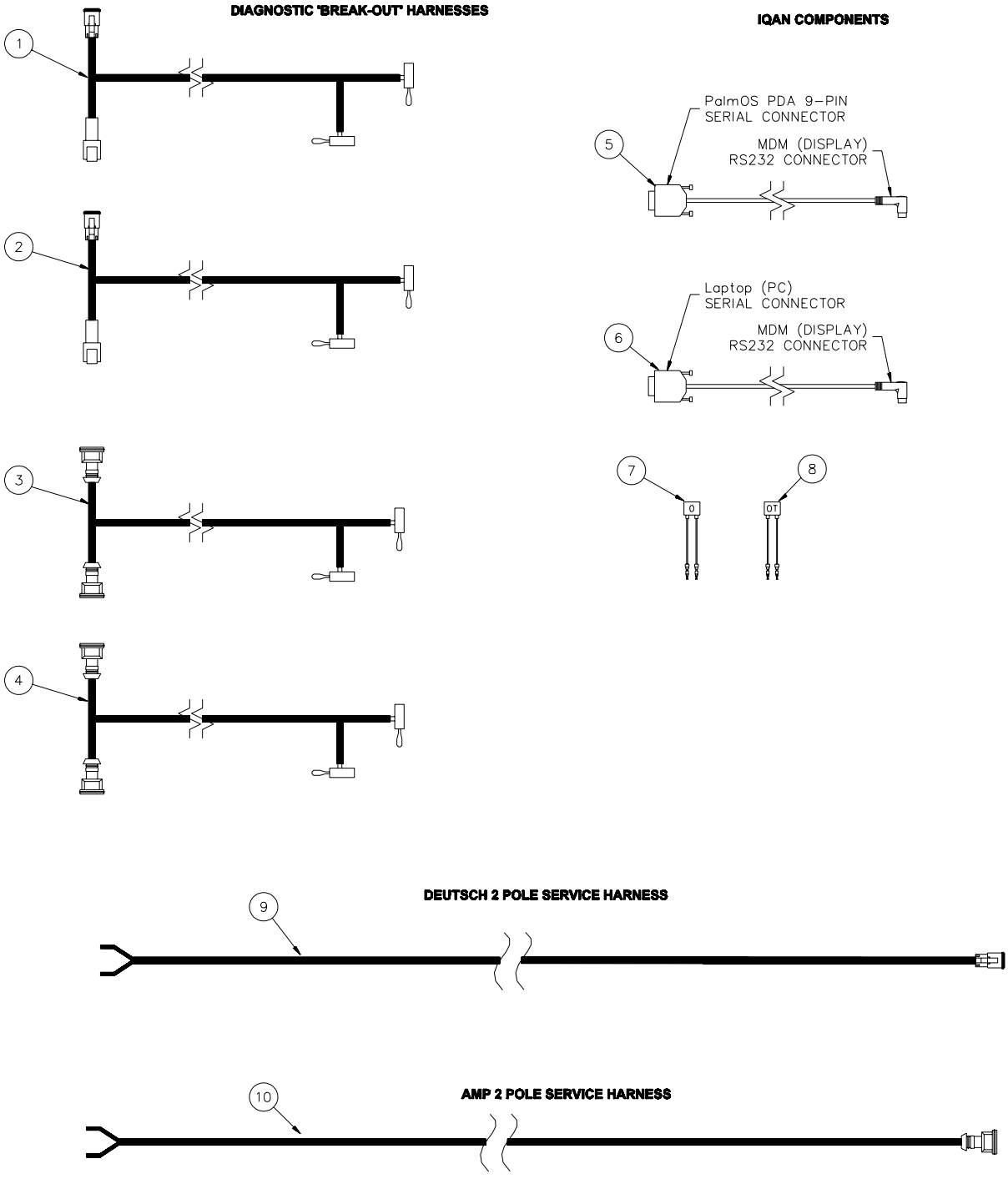
Module: XP2-A1 XL Leveller - This is the closed loop leveller programming. This module is used only on the LX822C and LX830C.

Depending on the model of machine the program is installed in one or both of the levelling modules will be disabled because the module is not used on the machine. In the case where a newer version of the program and/or a new MDM module has been installed during a service procedure it may be necessary for the service technician to disable the appropriate module(s).

822C/H822C/M822C/X822C/830C/X830C machines should have both levelling modules disabled.

L822C, L830C and LH830C machines should have the XP2-A1 XL Leveller module (closed loop leveller, used only on the LX822C and LX830C) disabled.

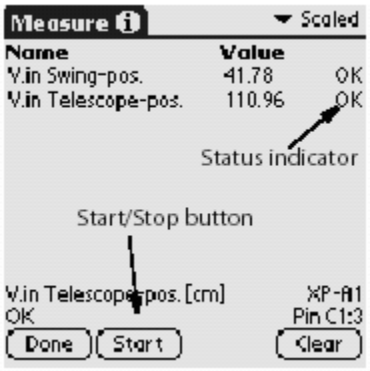
LX822C and LX830C machines should have XP2-A0 OL Leveller module (open loop leveller, used only on the L822C, L830C and LH830C) disabled.



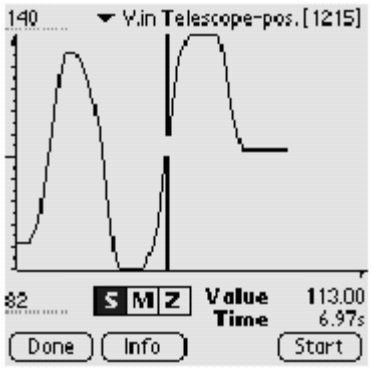
630C-56 **ELECTRICAL KIT - SERVICE AND DIAGNOSTICS - SELECTED ITEMS**

The *Clear* button is used to deselect all selected channels and return to channels window.

5. You can also **graph** a channel. This means you can measure graphically one channel



at a time. In figure 3 highlight a channel and tap the graph button. This will take you to Figure 5. The scaling of the Y-axis is shown next to the axis. Tap the start button to start measure. After having measured, the total log time is displayed after channel name. The **SMZ** buttons allow you to manipulate the graph. With the **S** you can use your stylus pent to position a cursor on the graph and read out the corresponding value and time of the cursor at the bottom-right corner. With the **M** you can move the graph and with the **Z** you can zoom in the graph. This is done by dragging your stylus pen on the screen. The drop down menu at the top right corner has five graph slot that are available to you for measurement. Select an empty slot, unless you want to overwrite your current graph. The info button allows you to add a comment to



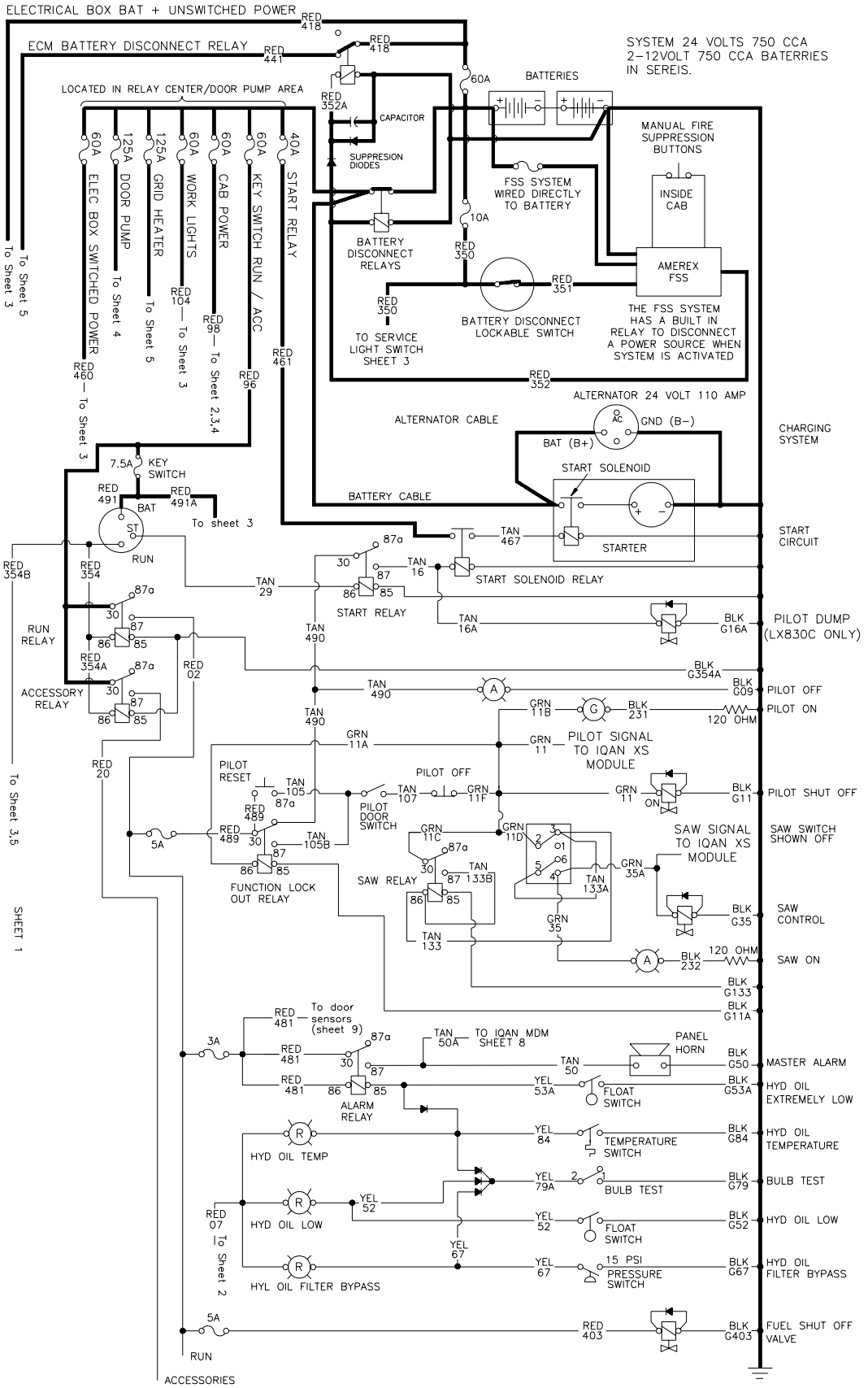
graph. The comment can hold 255 characters. The time is automatically captured when measurement starts.

Notice: Due to limited power of the processor of Palm, the measurement is not performed at full speed with respect to the master cycle time. Measurement is typically carried out with a 100ms sample interval on Palm. That means the glitches and spikes on the signal may not be registered.

B. GRAPHING AND MEASUREMENT OF CHANNELS USING A PC/LAPTOP

Procedure information to follow in next revision of the service manual.

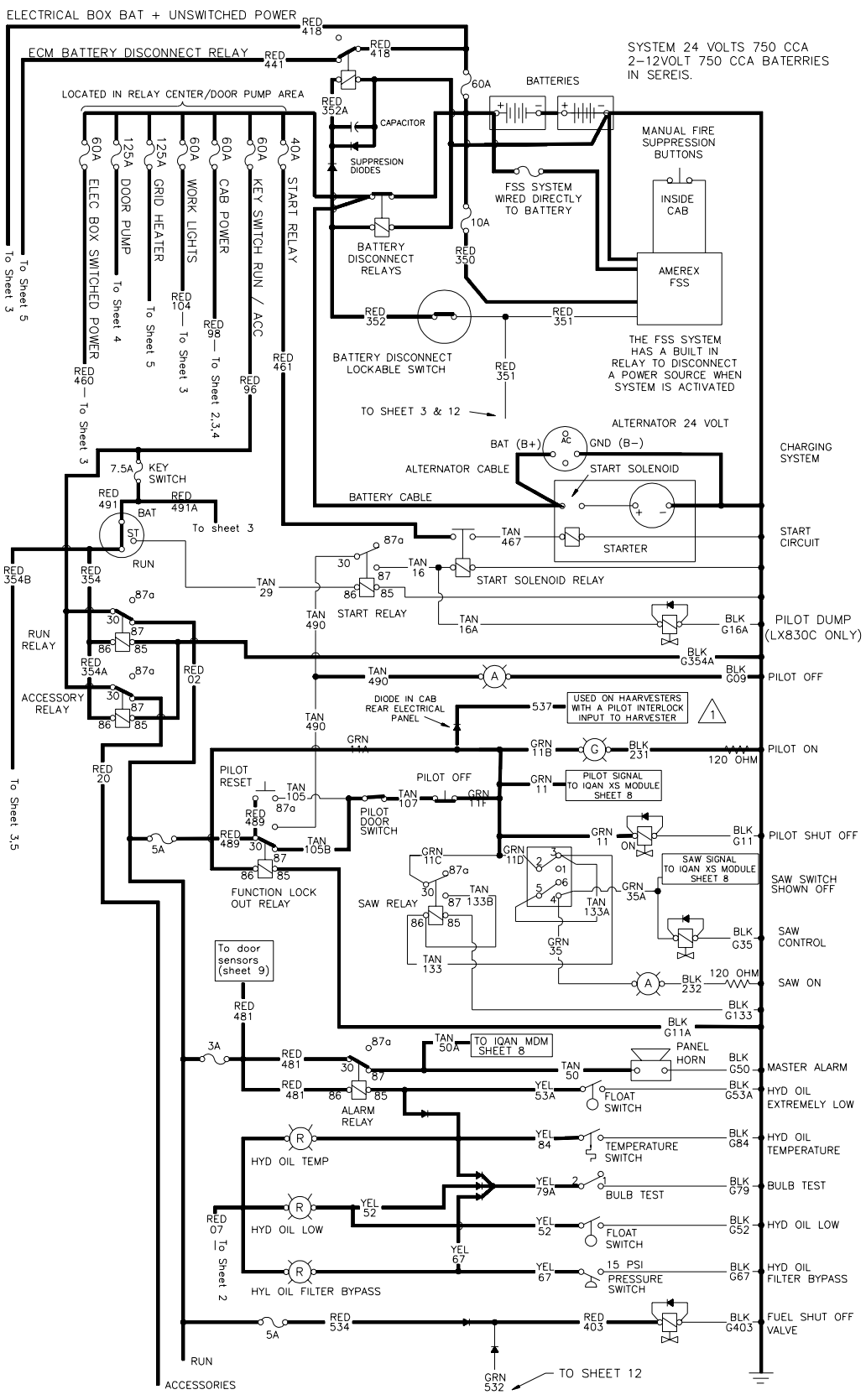
Contact Tigercat service department for more information



822C-07A

START CIRCUIT - AT REST
BATTERY DISCONNECT SWITCH - ON

EARLIER MACHINES (822*1001 TO 822*1100, 830*1001 TO 830*110)



822C-41E

START CIRCUIT - RUN

IGNITION KEY - RUN POSITION
PILOT RESET SWITCH - RELEASED
FRONT DOOR CLOSED/DOOR SWITCH - ON

LATER MACHINES (822*1101 AND UP, 830*1101 AND UP)

Tigercat X822C/LX822C/X830C/LX830C Feller Buncher

SECTION 10- OIL COOLER AND COOLING FAN

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- FAN CIRCUIT 10.18
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MAIN PUMP ..... *SEE* SECTION 4

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OIL COOLER CIRCUIT DESCRIPTION 10.6
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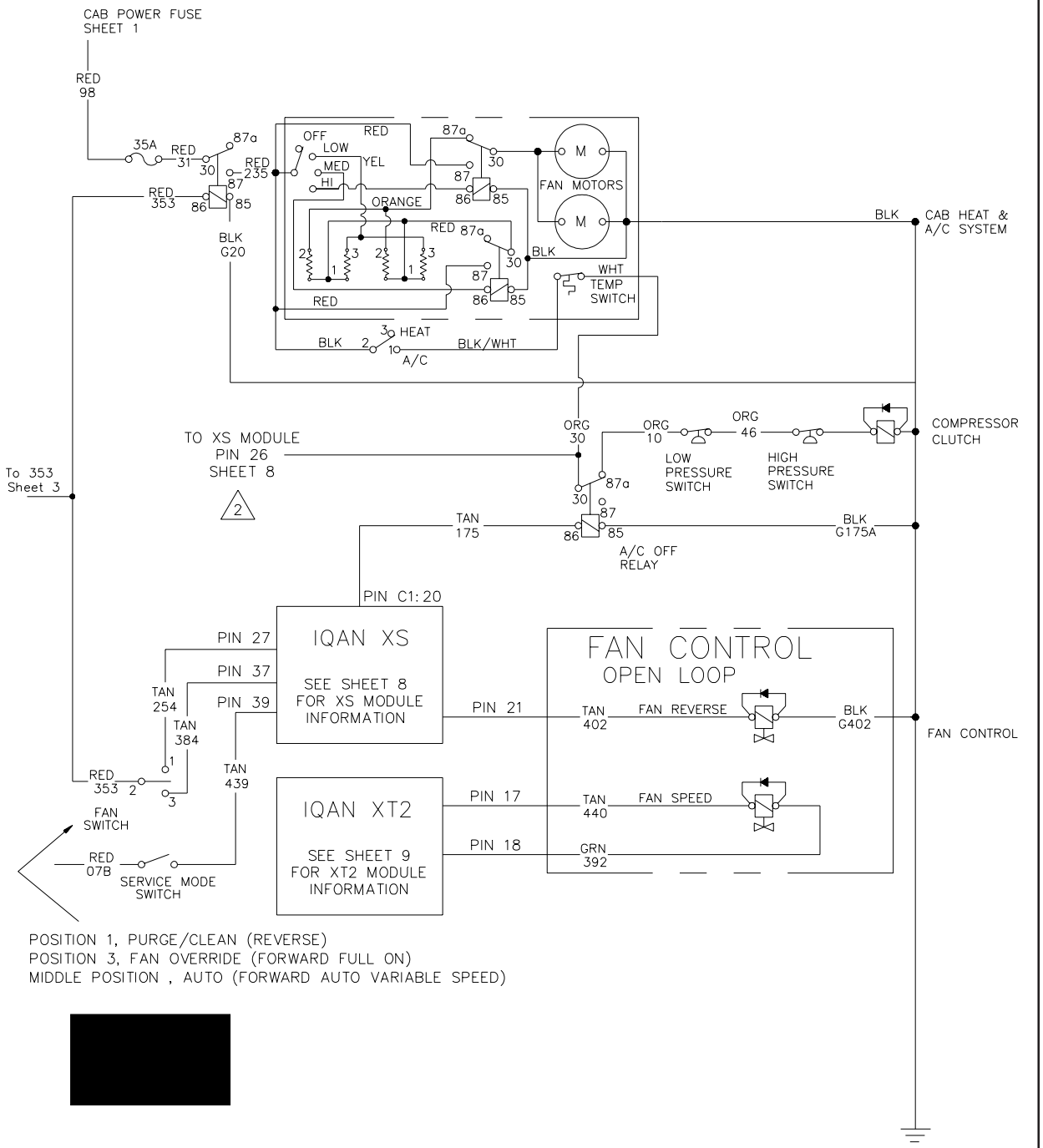


822C-13

FAN DRIVE ELECTRICAL SCHEMATIC

HYDROSTATIC DRIVE SYSTEM

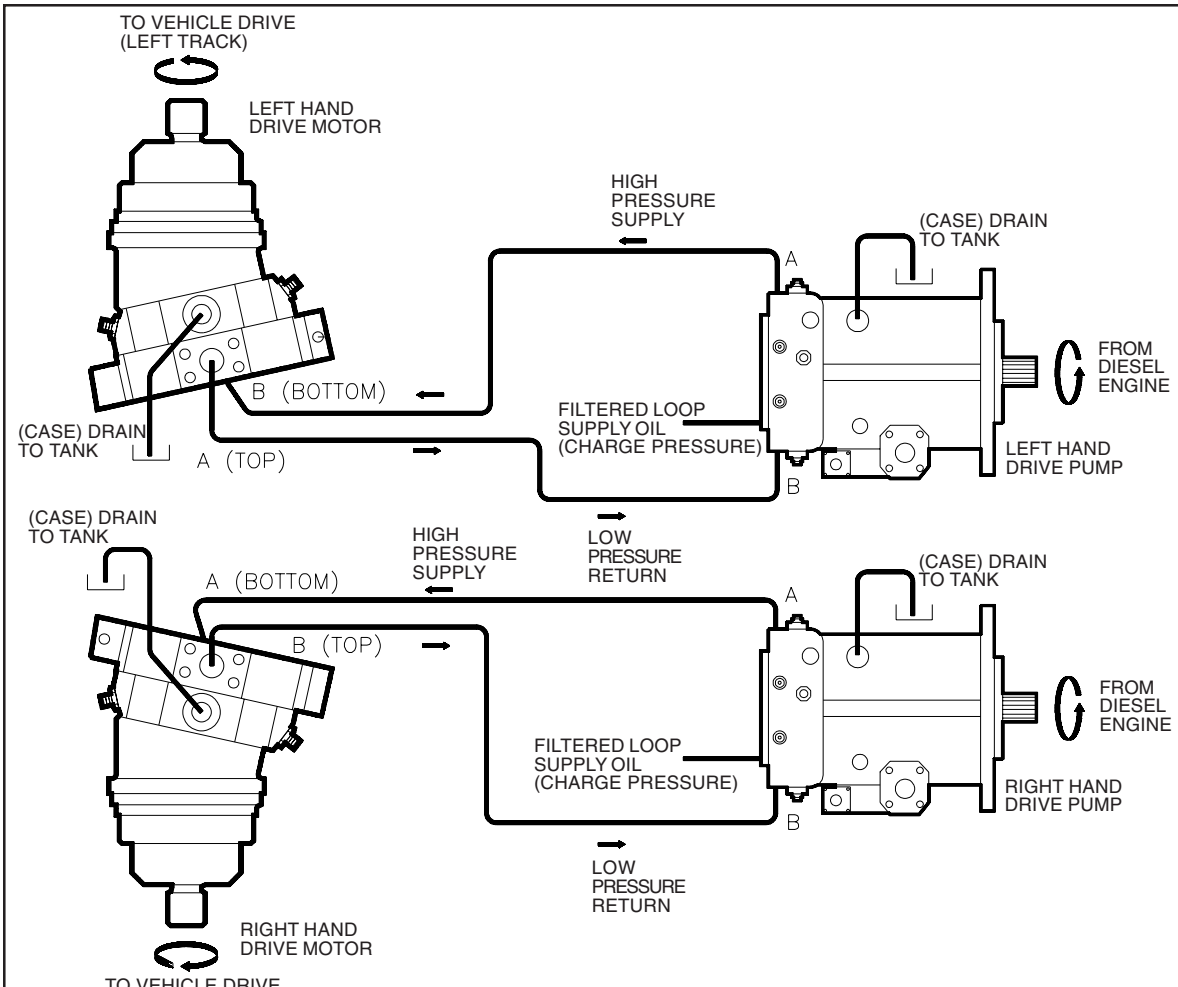
The primary components of the hydrostatic drive system are two hydraulic pumps and two hydraulic motors connected together by hydraulic hoses. The pump converts the mechanical power of the diesel engine into hydraulic power. This high pressure flow of hydraulic oil is then transmitted to the hydraulic motors through one set of connecting hoses (high pressure side). The motors then converts the hydraulic power back into mechanical power to propel the machine. Oil from the two motors is then returned to the pumps through the other set of connecting hoses (low pressure side) thereby completing a continuous closed hydraulic circuit.

A hydraulic system is termed closed circuit when the hydraulic oil returning from the motors is fed straight back to the pumps without first returning to tank. When the machine is travelling forward, one side of the closed circuit "loop" is a high pressure supply while the other side is a low pressure return. The supply and return will alternate from side to side of the closed loop as the direction of travel of the vehicle changes from forward to reverse.

The closed circuit is constantly being charged with filtered hydraulic oil by the charge pump via the charge/pilot/filter manifold and at connections on each drive pump. To allow for this replenishment of clean oil into the loop circuit, controlled internal oil leakage takes place within the cases of the motors. The pumps use the charge oil to flush the case for cooling purposes. The oil is then returned to tank via the case drain ports. This constant flow of filtered oil into the loop reduces contaminant buildup and assists with cooling.

Hydrostatic drives are used because they offer enhanced operator control of vehicle speed and tractive effort. As well hydrostatic drive systems give flexibility in the positioning of components within the machine when compared to mechanical drive systems.

Each hydraulic motor is connected to a triple reduction planetary gearbox on each track side frame. The gearboxes have an integral spring apply, hydraulic-release, multi-disc brake which is automatically released whenever the drive system is pressurized.



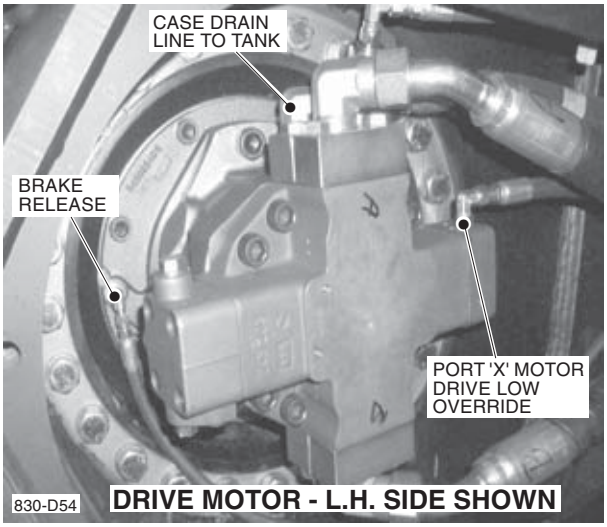
830-74 **TYPICAL CLOSED CIRCUIT "LOOP" HYDRAULIC TRACK DRIVE SYSTEM**

DRIVE MOTOR START-UP PROCEDURE

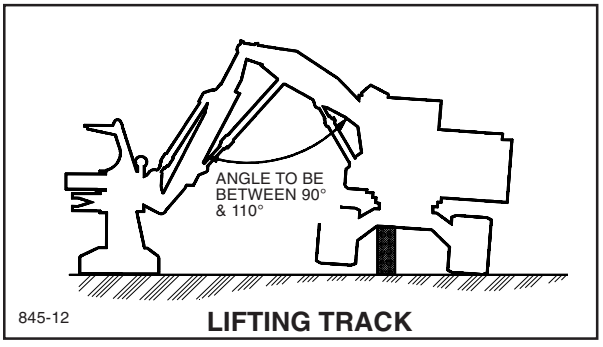
IMPORTANT:

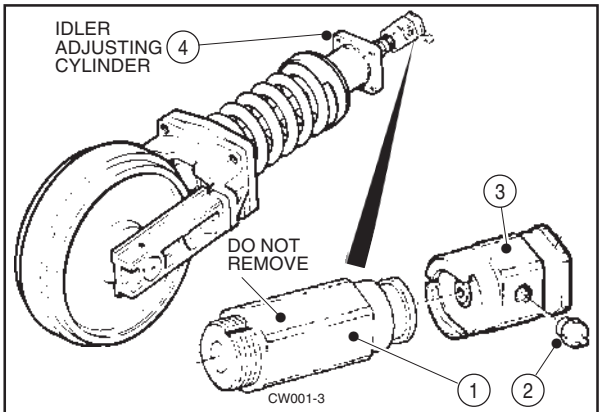
The drive motor will be damaged if is not filled with oil before operating the drive function. This procedure must be performed whenever a new drive motor or drive pump is installed or whenever oil has been drained from the motor.

1. Disconnect drive motor drain line at swivel elbow on top of motor, port 'U'.



2. Install plug in elbow to minimize loss of oil.
3. Remove port adapter from motor drain port.
4. Fill motor with oil through the drain port. Add oil slowly until level is to the top of drain port.
5. Install port adapter and re-connect swivel elbow.
6. Raise each track off the ground and run each drive motor **slowly** for three track revolutions to remove air from the drive circuit.





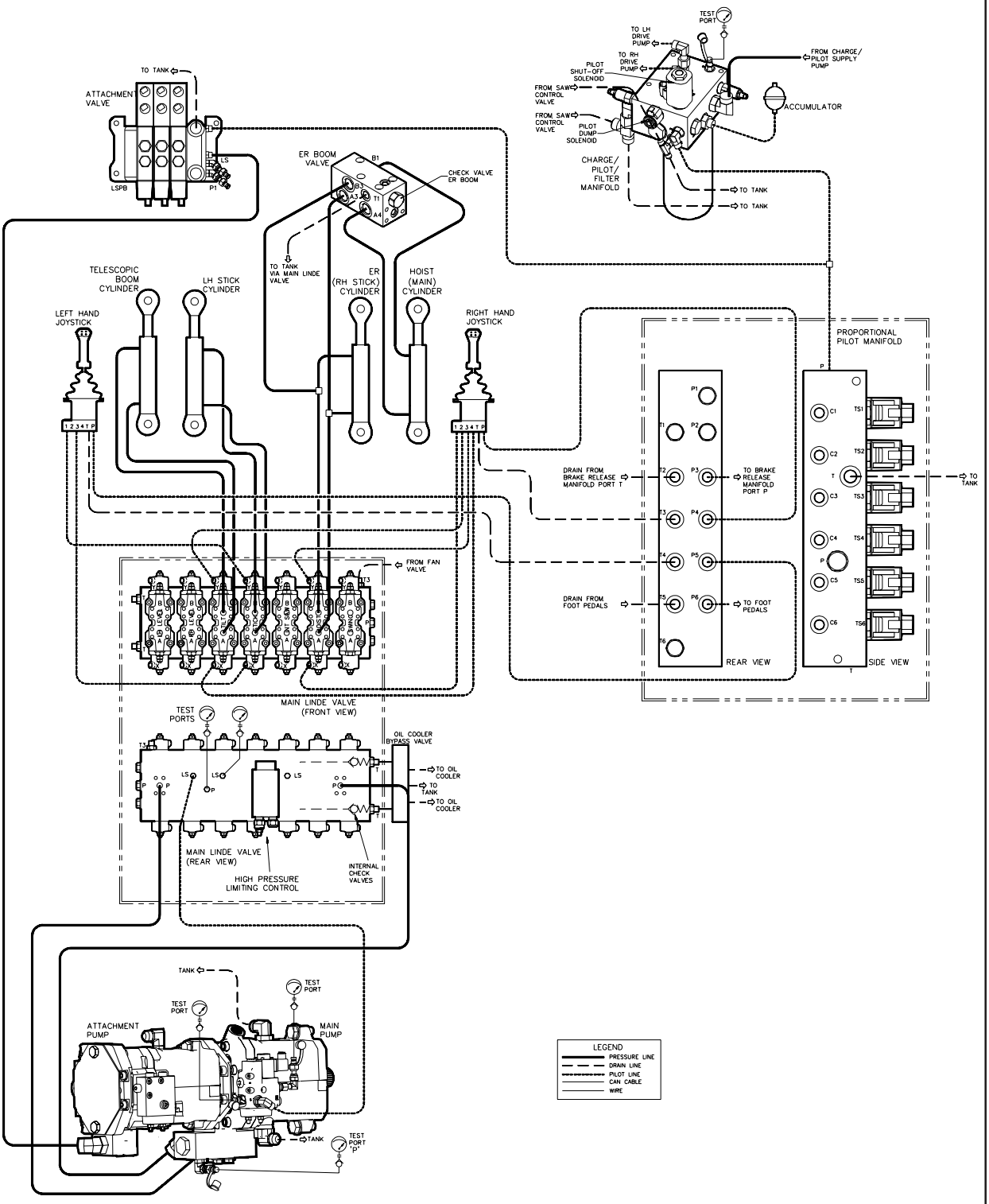
CW001-2 **TRACK ADJUSTMENT**

TRACK SAG ADJUSTMENT

To tighten track, attach adjustment fitting adapter (3) onto valve body (1). Connect a grease gun to the grease fitting (2) on the adjustment fitting adapter (3). Add grease until track sag dimension is within recommended limits. Remove adjustment fitting adapter.

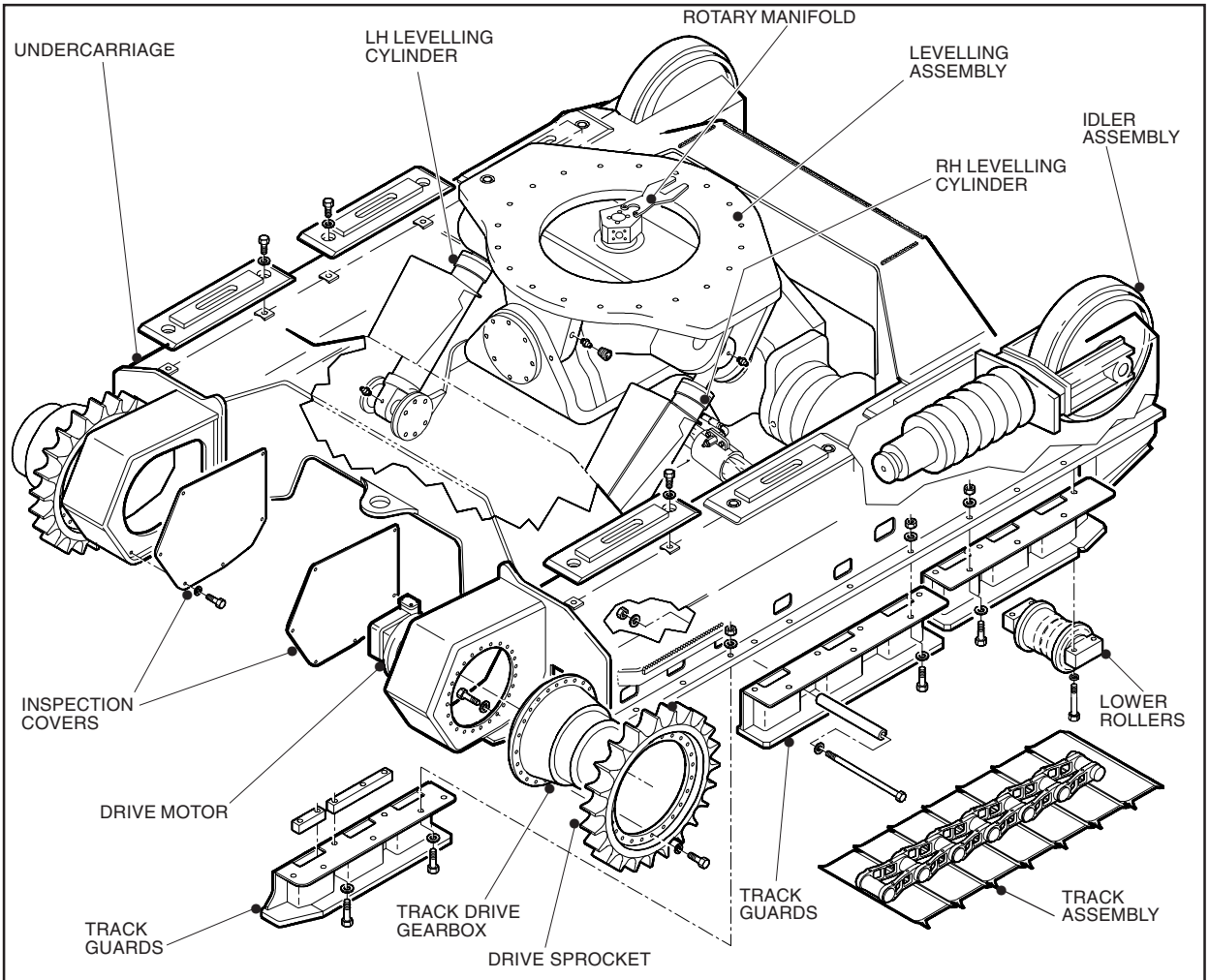
CAUTION: The grease is under very high pressure, DO NOT REMOVE the adjustment fitting valve body (1) from the idler adjusting cylinder (4).

To loosen track, slowly loosen valve body (1) until grease begins to escape via a relief passage in the valve body housing, grease will be seen escaping from around valve body threads. When track sag is correct, tighten valve body.



'ER' BOOM SYSTEM CIRCUIT DIAGRAM

X822C-09



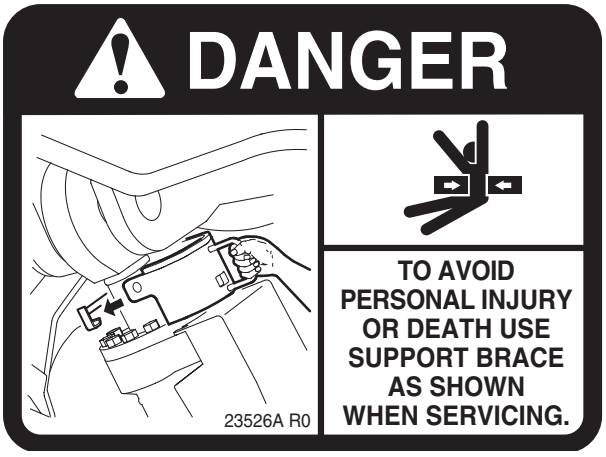
860-70

LEVELLING UNDERCARRIAGE ASSEMBLY

SET COUNTERBALANCE VALVE PRESSURES

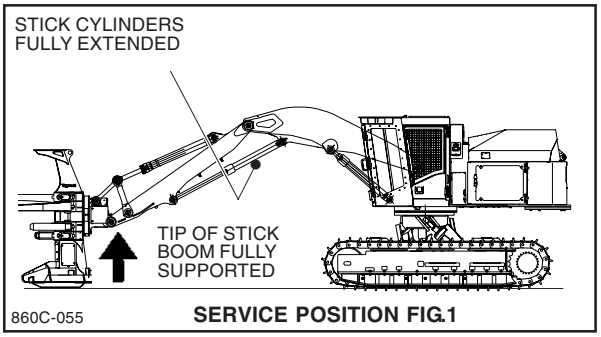
DANGER

Extreme care and attention must be exercised when making adjustments to the levelling hydraulic and electrical circuits. Ensure that all personnel not directly associated with the servicing are well clear of the machine.
The whole upper frame/cab/engine compartment, boom and attachment can tilt unexpectedly from side to side or forward and backwards during servicing, creating "pinch points" between the upper frame and track assembly and the ground.



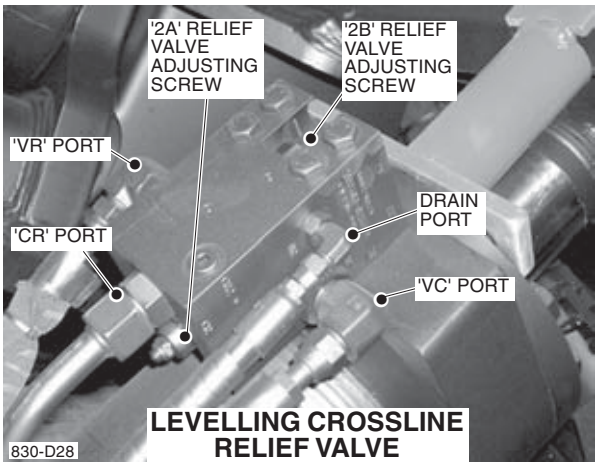
NOTE: Each valve is factory set and should require no further adjustment.

If adjustment is required counterbalance valves must be set manually per the following instructions.



SERVICE POSITION FIG.1

1. Park machine on level ground, lower the attachment to the ground, engage the swing brake and stop engine. Turn battery disconnect switch off. Install levelling cylinder support brace to prevent tilting of the upper frame during this procedure.



LEVELLING CROSSLINE RELIEF VALVE

2. Access the levelling counterbalance relief valves located on the levelling cylinders.
3. Loosen locknut on '2A' counterbalance relief valve and turn the adjusting screw all the way IN (turning clockwise).
4. Turn the adjusting screw OUT 5 1/2 turns (turning counter clockwise). Tighten locknut on adjusting screw taking care not to turn the adjusting screw itself. This will set the relief valve at approximately **380 Bar (5600 psi).**
5. Repeat steps 3 and 4 for the '2B' counterbalance relief valve.
6. Repeat steps 3 to 5 for the counterbalance valve on the other cylinder (total of 4 reliefs, 2 on each counterbalance valve).

LUBRICATING CYLINDERS AND PINS

Refer to LUBRICATION SCHEDULE AND DIAGRAM in SECTION 3 of THIS MANUAL.

Tigercat X822C/LX822C/X830C/LX830C Feller Buncher

SECTION 15 - SWING

OCTOBER 2007

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ADJUST OIL FLOW TO SWING MOTOR(SWING MOTOR SPEED) 15.7

CIRCUIT DIAGRAM 15.3

HYDRAULIC SCHEMATIC
- SWING CIRCUIT 15.4

SET SWING MOTOR SPEED 15.7
SWING BEARING WEAR LIMITS 15.10
SWING DRIVE
- SWING HYDRAULICS 15.2
  - SET CROSSLINE RELIEF VALVES 15.6

SWING DRIVE GEARBOX
- LOWER BEARING LUBRICATION 15.5
- LUBRICATION OF SWING PINION AND SWING BEARING 15.5
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SWING MOTOR REMOVAL FROM GEARBOX 15.8

SECTION 17 - SAW DRIVE

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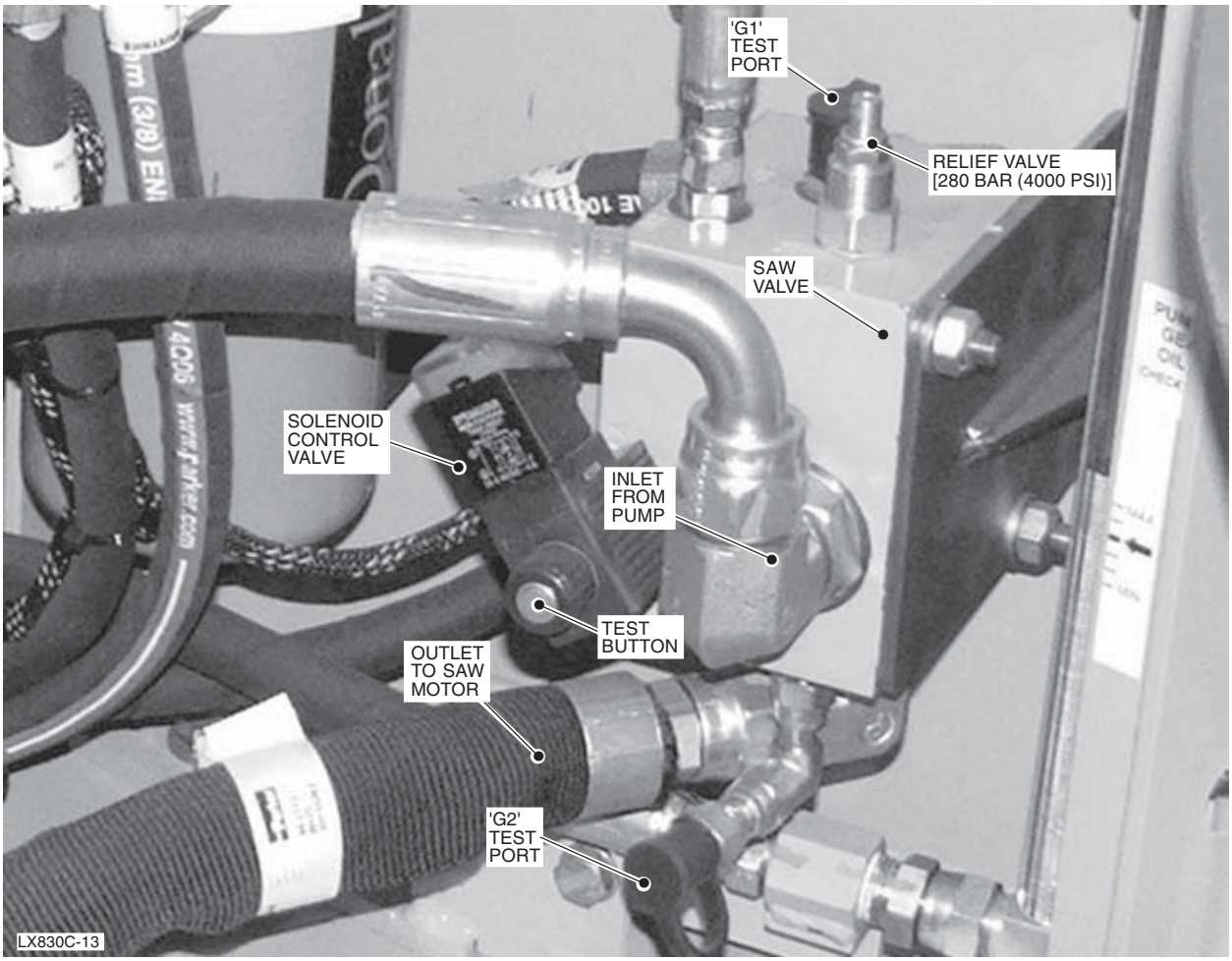
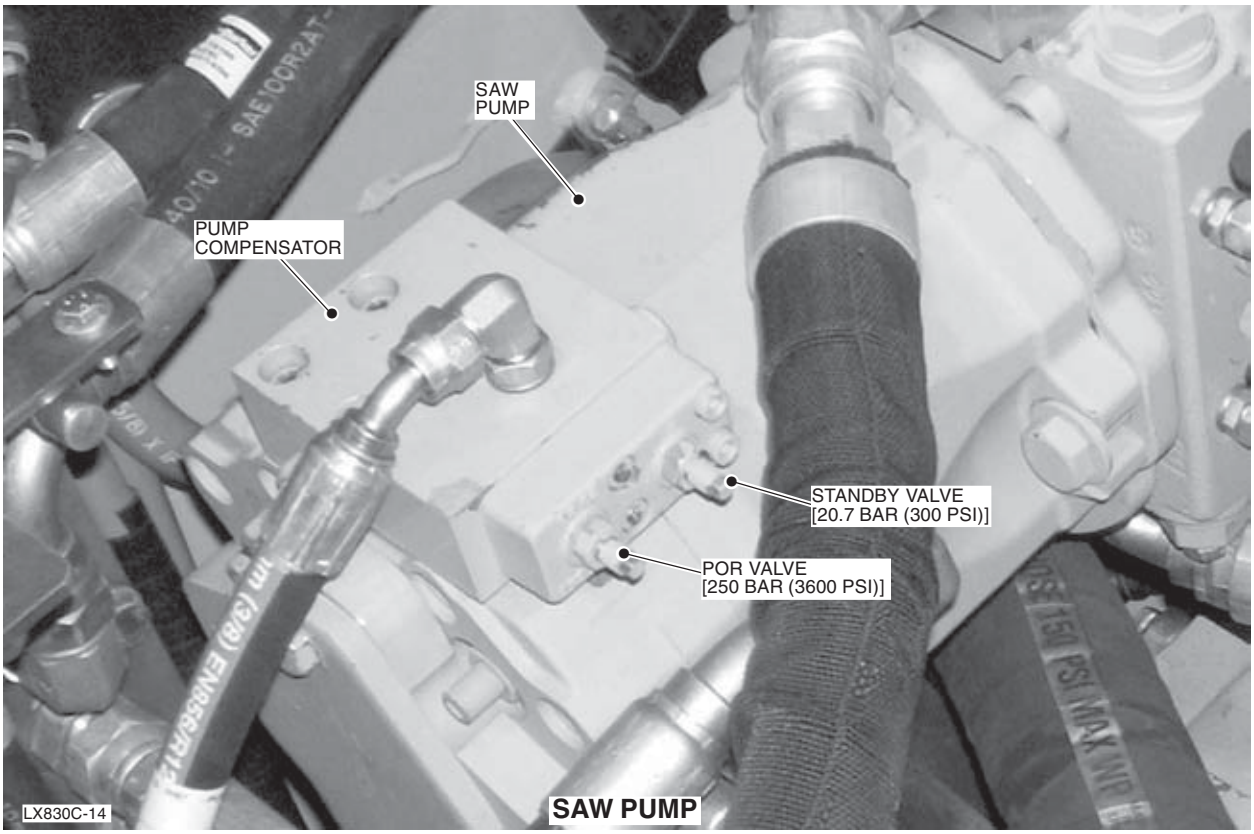
MOTOR MINIMUM DISPLACEMENT. ..... *SEE* FELLING HEAD MANUAL

SAW CONTROL VALVE 17.4
SAW PUMP
  DESCRIPTION 17.2
  SCHEMATIC 17.2

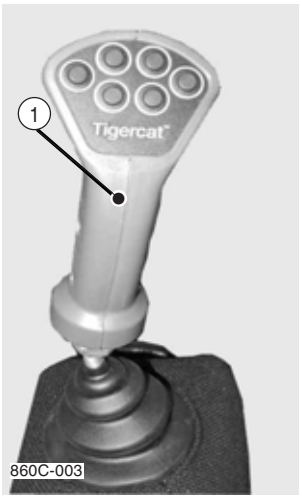

'G1' TEST PORT
RELIEF VALVE [280 BAR (4000 PSI)]
SAW VALVE
SOLENOID CONTROL VALVE
INLET FROM PUMP
TEST BUTTON
OUTLET TO SAW MOTOR
'G2' TEST PORT
LX830C-13

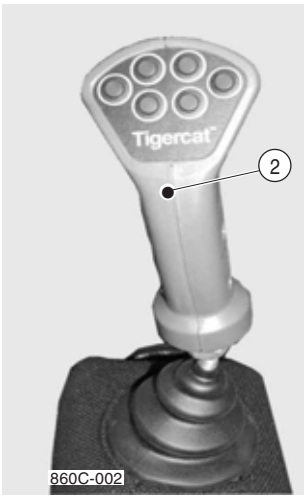

SAW PUMP
PUMP COMPENSATOR
STANDBY VALVE [20.7 BAR (300 PSI)]
POR VALVE [250 BAR (3600 PSI)]
LX830C-14

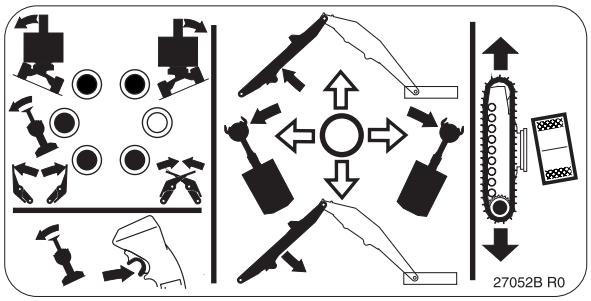
SAW PUMP

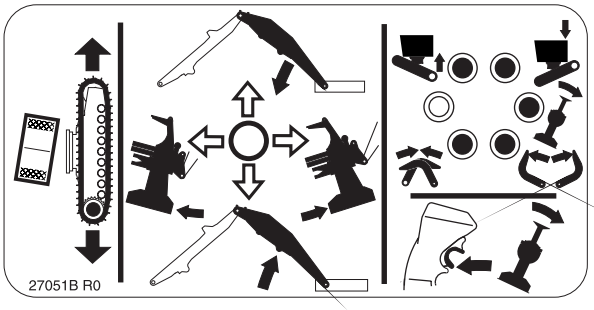
JOYSTICK CONTROLS

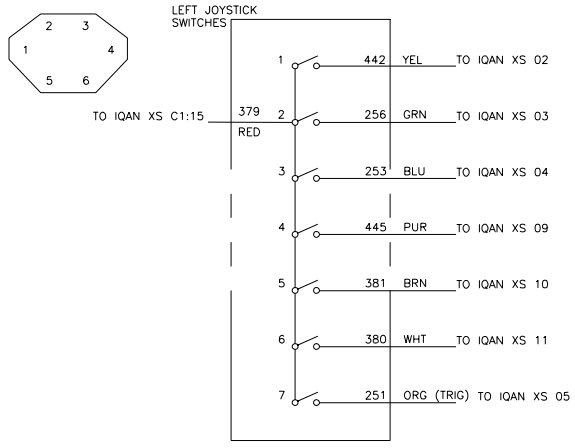
The factory installed left (1) and right (2) joysticks are equipped with thumb switches and finger buttons that are used as an operator interface with the electronic control system to activate the clamp arm, accumulator arm and wrist functions. Refer also to JOYSTICK in SECTION 2 of the OPERATOR'S MANUAL for a complete description of factory equipped joystick control function.



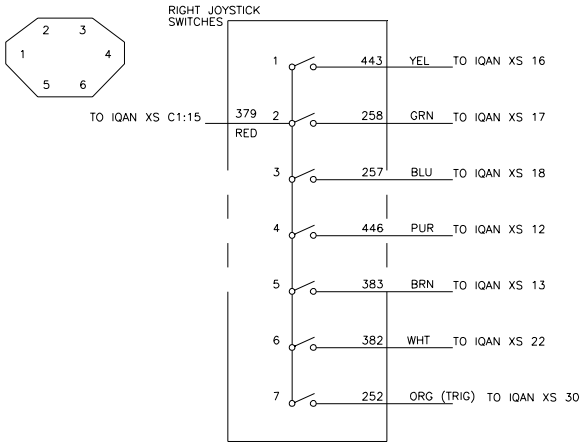








1. Wrist CCW
2. Level Left (if equipped)
3. Level Right (if equipped)
4. Not Used
5. Accumulator Arm Open
6. Accumulator Arm Close
7. Wrist CCW



1. Not Used
2. Level Forward (if equipped)
3. Level Back (if equipped)
4. Wrist CW
5. Clamp Arm Close
6. Clamp Arm Open
7. Wrist CW

32112BR2S7

JOYSTICK ELECTRICAL CIRCUIT (FACTORY INSTALLATION SHOWN)