FREEMAN

Troubleshooting Plunger Extend & Retract

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It will be necessary to run the baler while making adjustments. Please keep all personnel, fingers, and items that are close to you away from all moving parts. The pickup does not need to be rotating so please put the control valve in neutral.

When troubleshooting an electrical problem it is not always necessary to have the baler running. You can do a majority of the troubleshooting with the PTO disengaged, the power to the baler turned on the automatic manual mode switch in automatic.

In order for the plunger to extend relay 1 must be set, and to retract relay 1 must be released. Relay 1 is a magnetic latching relay. It takes 12 volts to set it, and it takes 12 volts to release it. Once it is sets, a magnet holds the contacts closed and it will stay set until 12 volts is applied to the release coil of the relay. The 12 volts that was used to set the relay must be removed from the relay before the relay will release when 12 volts is applied, or vice versa. If the relay has 12 volts applied to both coils, it will stay in the position that 12 volts was applied to first.

In order for relay 1 to set LS-1, LS-2 & LS-3 must be activated; this closes the current path between 12 volts automatic (TB-1-9) and TB-2-8. As the plunger advances it clears the paddles of hay, the paddles drop down and release relay 3. Which; removes the 12 volts from relay 1.

To test:

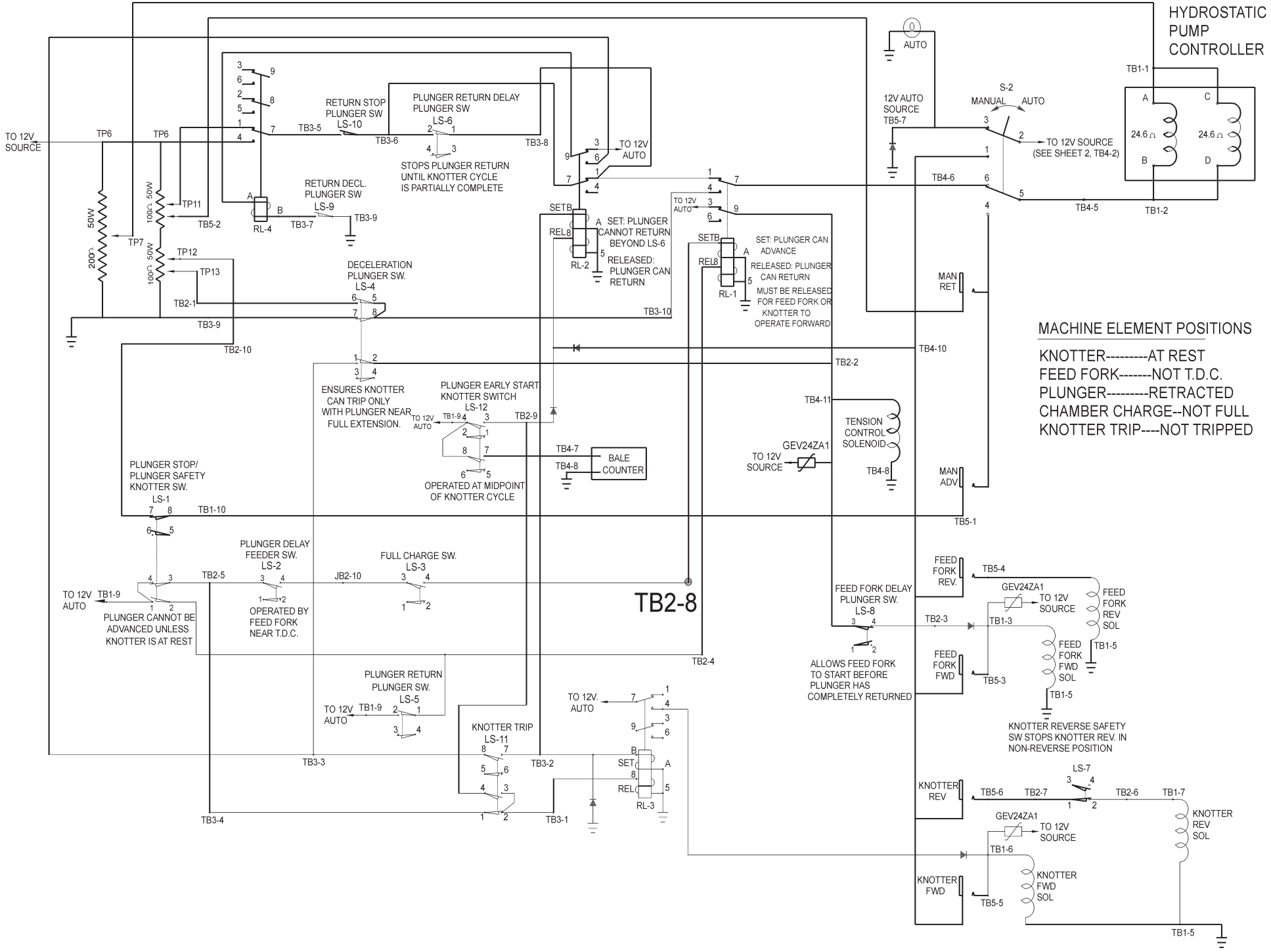
1. Baler does not need to be running.
2. Power on, automatic manual mode switch in automatic.
3. Knotter home position; 12 volts at TB-2-5.
4. Activate LS-2 and tie up with string or twine.
5. Activate LS-3 (paddles up) and tie up.
6. Should have 12 volts at TB-2-8.
7. Release LS-3 (lower paddles).
8. No Voltage at TB-2-8.
9. Relay one is now set. If you start the baler with the automatic manual mode switch in automatic the plunger would go ahead and extend and retract, providing LS-5 releases and delivers 12 volts to the release coil of LS-1.
10. To verify that relay 1 is set:
    a. Relay 1 set = no voltage at TB-2-2.
    b. Relay 1 released = 12 volts at TB-2-2.
11. If you are not continuing with this testing you should (with a jumper wire) apply 12 volts to TB-2-4 to release relay 1. This will eliminate the plunger from advancing when you start the baler again.

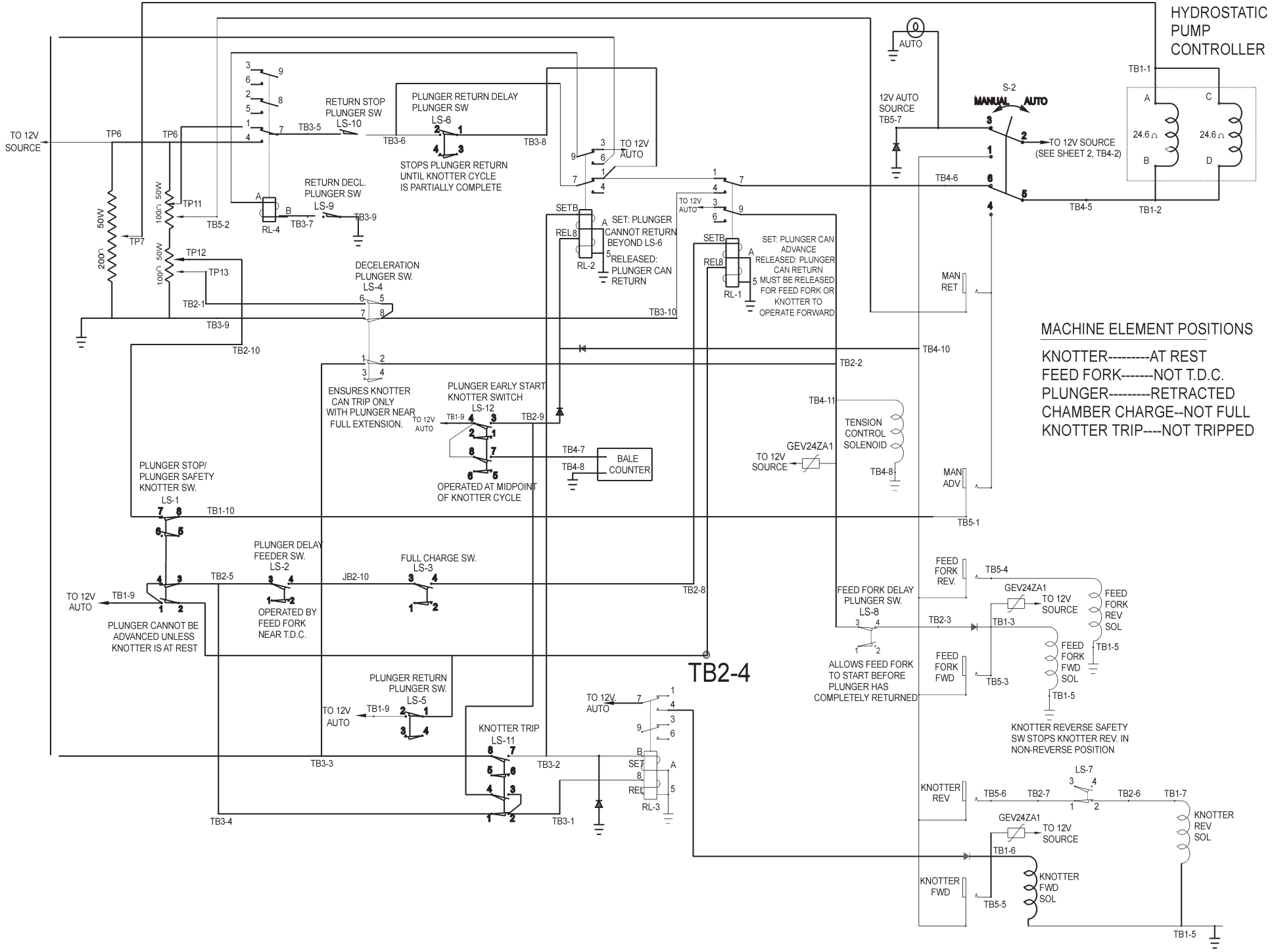
As noted; Relay 1 to operate properly can only have 12 volts on the set coil, or 12 volts on the release coil. Cannot have 12 volts at TB-2-8 & TB-2-4 at the same time.

To test LS-5;

1. If there is hay in the chamber, close the bale valve on the tension control system.
2. Using the manual operation pendant extend plunger to full extend and stall until chamber doors open. This will relieve the pressure on the hay and hopefully the plunger will stay in the full extend position and LS-5 will be released. LS-5 must be released for the 12-volt path to get from TB-1-9 to TB-2-4.
3. Shut the tractor off.
4. Power to the baler on, automatic manual mode switch in automatic.
5. Should have 12 volts at TB-2-4.
6. If you don't you might want to look inside the chamber and make sure LS-5 is released.

Any Questions call Joe Orluck 1-800-627-0429


HYDROSTATIC PUMP CONTROLLER
TB1-1
A
C
24.6Ω
24.6Ω
B
D
TB1-2
AUTO
12V AUTO SOURCE TB5-7
S-2
MANUAL
AUTO
TO 12V SOURCE (SEE SHEET 2, TB4-2)
TB4-6
TB4-5
TO 12V SOURCE
TP6
TP6
50W
200Ω
100Ω 50W
TP11
TP7
TP12
TP13
100Ω 50W
TB5-2
TB2-1
TB3-9
TB2-10
RETURN STOP PLUNGER SW LS-10
TB3-5
TB3-6
PLUNGER RETURN DELAY PLUNGER SW LS-6
TB3-8
STOPS PLUNGER RETURN UNTIL KNOTTER CYCLE IS PARTIALLY COMPLETE
RETURN DECL. PLUNGER SW LS-9
RL-4
TB3-7
TB3-9
TO 12V AUTO
SETB
REL8
RL-2
SET: PLUNGER CANNOT RETURN BEYOND LS-6
RELEASED: PLUNGER CAN RETURN
TB3-10
SETB
REL8
RL-1
SET: PLUNGER CAN ADVANCE
RELEASED: PLUNGER CAN RETURN
MUST BE RELEASED FOR FEED FORK OR KNOTTER TO OPERATE FORWARD
MAN RET
DECELERATION PLUNGER SW. LS-4
TB4-10
TB2-2
ENSURES KNOTTER CAN TRIP ONLY WITH PLUNGER NEAR FULL EXTENSION.
PLUNGER EARLY START KNOTTER SWITCH LS-12
TB1-9
TB2-9
OPERATED AT MIDPOINT OF KNOTTER CYCLE
TB4-7
TB4-8
BALE COUNTER
TB4-11
TENSION CONTROL SOLENOID
GEV24ZA1
TO 12V SOURCE
TB4-8
MAN ADV
TB5-1
MACHINE ELEMENT POSITIONS
KNOTTER---------AT REST
FEED FORK-------NOT T.D.C.
PLUNGER---------RETRACTED
CHAMBER CHARGE--NOT FULL
KNOTTER TRIP----NOT TRIPPED
PLUNGER STOP/ PLUNGER SAFETY KNOTTER SW. LS-1
TB1-10
PLUNGER DELAY FEEDER SW. LS-2
TB2-5
JB2-10
FULL CHARGE SW. LS-3
TB2-8
TB2-4
TO 12V AUTO
TB1-9
PLUNGER CANNOT BE ADVANCED UNLESS KNOTTER IS AT REST
OPERATED BY FEED FORK NEAR T.D.C.
FEED FORK DELAY PLUNGER SW. LS-8
ALLOWS FEED FORK TO START BEFORE PLUNGER HAS COMPLETELY RETURNED
FEED FORK REV.
TB5-4
GEV24ZA1
TO 12V SOURCE
FEED FORK REV SOL
TB2-3
TB1-3
TB1-5
FEED FORK FWD
TB5-3
FEED FORK FWD SOL
TB1-5
KNOTTER REVERSE SAFETY SW STOPS KNOTTER REV. IN NON-REVERSE POSITION
PLUNGER RETURN PLUNGER SW. LS-5
TO 12V AUTO
TB1-9
KNOTTER TRIP LS-11
TB3-3
TB3-2
TB3-4
TB3-1
TO 12V. AUTO
SET
REL
RL-3
LS-7
KNOTTER REV
TB5-6
TB2-7
TB2-6
TB1-7
GEV24ZA1
TO 12V SOURCE
KNOTTER REV SOL
TB1-6
KNOTTER FWD
KNOTTER FWD SOL
TB5-5
TB1-5


HYDROSTATIC PUMP CONTROLLER
TB1-1
A
C
24.6Ω
24.6Ω
B
D
TB1-2
TO 12V SOURCE
TP6
TP6
50W
200Ω
100Ω 50W
100Ω 50W
TP11
TP12
TP13
TP7
TB5-2
TB2-1
TB3-9
TB2-10
RETURN STOP PLUNGER SW LS-10
TB3-5
TB3-6
TB3-8
PLUNGER RETURN DELAY PLUNGER SW
LS-6
STOPS PLUNGER RETURN UNTIL KNOTTER CYCLE IS PARTIALLY COMPLETE
RETURN DECL. PLUNGER SW LS-9
RL-4
TB3-7
TB3-9
DECELERATION PLUNGER SW. LS-4
ENSURES KNOTTER CAN TRIP ONLY WITH PLUNGER NEAR FULL EXTENSION.
TO 12V AUTO
SETB
REL8
RL-2
SET: PLUNGER CANNOT RETURN BEYOND LS-6
RELEASED: PLUNGER CAN RETURN
TB3-10
SET: PLUNGER CAN ADVANCE
RELEASED: PLUNGER CAN RETURN
MUST BE RELEASED FOR FEED FORK OR KNOTTER TO OPERATE FORWARD
RL-1
AUTO
12V AUTO SOURCE TB5-7
S-2
MANUAL
AUTO
TO 12V SOURCE (SEE SHEET 2, TB4-2)
TB4-6
TB4-5
TB1-2
MAN RET
MAN ADV
TB5-1
TB4-10
TB2-2
PLUNGER EARLY START KNOTTER SWITCH LS-12
TB1-9
TB2-9
OPERATED AT MIDPOINT OF KNOTTER CYCLE
TB4-7
TB4-8
BALE COUNTER
TB4-11
TENSION CONTROL SOLENOID
GEV24ZA1
TO 12V SOURCE
TB4-8
PLUNGER STOP/ PLUNGER SAFETY KNOTTER SW. LS-1
TB1-10
PLUNGER DELAY FEEDER SW. LS-2
TB2-5
JB2-10
FULL CHARGE SW. LS-3
TB2-8
OPERATED BY FEED FORK NEAR T.D.C.
PLUNGER CANNOT BE ADVANCED UNLESS KNOTTER IS AT REST
TB2-4
PLUNGER RETURN PLUNGER SW. LS-5
KNOTTER TRIP LS-11
TB3-3
TB3-2
TB3-4
TB3-1
RL-3
FEED FORK DELAY PLUNGER SW. LS-8
ALLOWS FEED FORK TO START BEFORE PLUNGER HAS COMPLETELY RETURNED
FEED FORK REV.
FEED FORK FWD
TB5-4
TB5-3
TB2-3
TB1-3
TB1-5
FEED FORK REV SOL
FEED FORK FWD SOL
KNOTTER REVERSE SAFETY SW STOPS KNOTTER REV. IN NON-REVERSE POSITION
KNOTTER REV
KNOTTER FWD
LS-7
TB5-6
TB2-7
TB2-6
TB1-7
TB1-6
TB5-5
KNOTTER REV SOL
KNOTTER FWD SOL
MACHINE ELEMENT POSITIONS
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