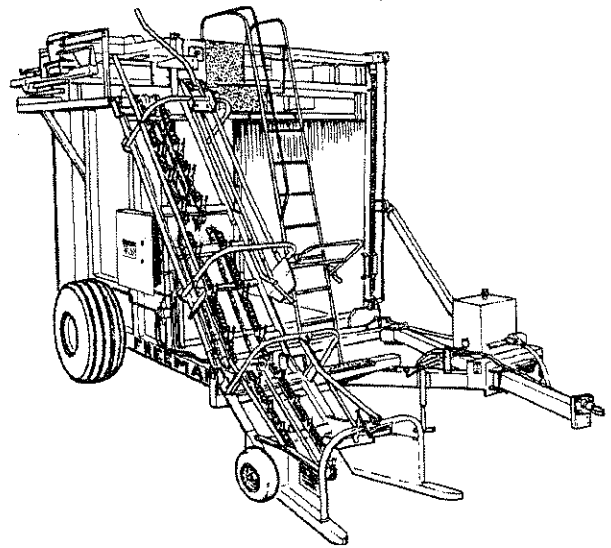
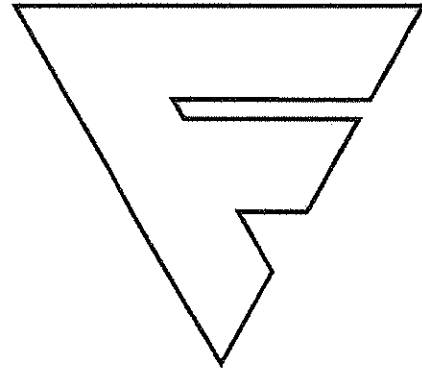


# FREEMAN

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MODEL 7000  
PULL TYPE BALEWAGON

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## OPERATOR MANUAL

PB7000OP99

## SAFETY


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J.A. Freeman & Son is greatly concerned with safety. The Freeman Pull Type Balewagon is furnished with safety features. Even with these safety features, personal injury can still occur if the operator is careless, negligent or thoughtless when maintaining, lubricating, operating, unclogging, or servicing the machine.

Your Freeman Pull Type Balewagon has safety shields to help prevent personal injury. Do not operate the machine unless all shields are in place. There are also "CAUTION," "DANGER," and "BE CAREFUL" decals on the machine. Read and pay attention to the decals.

Following is a list of precautions that should be taken to help prevent personal injury:

1. SHUT OFF TRACTOR ENGINE BEFORE ADJUSTING, LUBRICATING, CLEANING OR SERVICING THE BALEWAGON.
2. KEEP HANDS, FEET AND CLOTHING AWAY FROM POWER DRIVEN PARTS.
3. USE APPROPRIATE SIGNS OR WARNING LIGHTS WHEN OPERATING ON PUBLIC ROADWAYS.
4. MAKE CERTAIN EVERYONE IS CLEAR OF AND OFF THE BALEWAGON BEFORE OPERATING ANY PART OF THE MACHINE.
5. ALWAYS USE LIGHTS FOR NIGHT WORK.
6. DO NOT LEAVE THE OPERATOR'S SEAT WHILE THE EQUIPMENT IS IN OPERATION OR WHILE ANY OF THE MOVING PARTS REMAIN IN MOTION.
7. KEEP ALL SHIELDS IN PLACE AND IN SERVICEABLE CONDITION.
8. DO NOT GO NEAR ANY EQUIPMENT UNTIL ALL MOVING PARTS ARE STOPPED.
9. DO NOT GO UNDER ANY RAISED COMPONENTS UNTIL THEY ARE SAFELY BLOCKED.
10. DO NOT ALLOW ANYONE UNDER OR NEAR LOAD WHILE IT IS BEING RAISED.
11. AT ALL TIMES CARRY AN "A" "B" "C" FIRE EXTINGUISHER ON THE MACHINE.
12. REMEMBER "SAFETY" IS ONLY A WORD UNTIL IT IS PUT INTO PRACTICE.

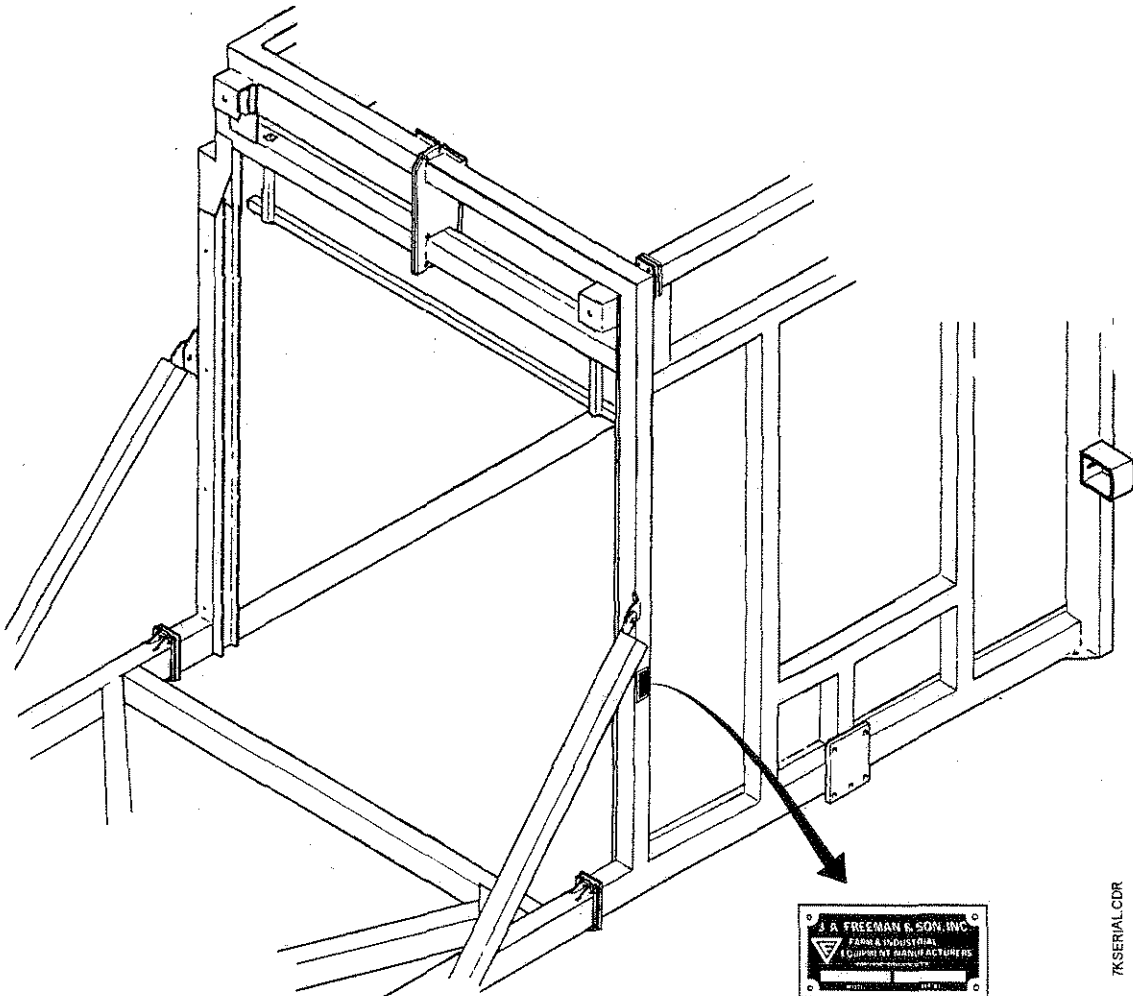
 **WARNING:** SOME ILLUSTRATIONS IN THIS PARTS LIST SHOW THE BALEWAGON WITHOUT SHIELDS TO ALLOW FOR A BETTER VIEW OF THE AREA BEING ADDRESSED. THE BALEWAGON SHOULD NEVER BE OPERATED WITH ANY OF THE SAFETY SHIELDS REMOVED.

**INTENTIONALLY BLANK**

## SERIAL NUMBER LOCATION AND IDENTIFICATION

### SERIAL NUMBER LOCATION

The serial number is an important piece of information about the machine and it may be necessary to know it before obtaining the correct replacement part. The serial number is located on the left front frame as shown.



**⚠ WARNING:** SOME ILLUSTRATIONS IN THIS PARTS LIST SHOW THE BALEWAGON WITHOUT SHIELDS TO ALLOW FOR A BETTER VIEW OF THE AREA BEING ADDRESSED. THE MACHINE SHOULD NEVER BE OPERATED WITH ANY OF THE SAFETY SHIELDS REMOVED.

**NOTE:** ILLUSTRATIONS ARE FOR "ORDERING" INFORMATION ONLY, AND ARE NOT INTENDED FOR USE AS AN ASSEMBLY GUIDE.

## INSTRUCTIONS FOR ORDERING

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1. Order by part number and description of part.
  - (a) Parts should NOT be ordered from illustration only.
  - (b) Parts should NOT be ordered from numbers on castings.
2. Order by serial number and model.
3. Much delay and confusion can be avoided if part numbers are arranged in sequence on all orders.
4. State how to ship: whether by truck, stage, parcel post, air parcel post, UPS, or air freight.
5. Claims for shortage or error in handling of an order for parts must be made upon receipt of goods.
6. Address all orders for parts as follows:

**Allied Systems**  
COMPANY  
21433 SW Oregon St.  
Sherwood, OR 97140  
U.S.A.

Place serial number of machine here for your convenience:

Model 7000      BALEWAGON Serial No. \_\_\_\_\_

Left and right of machine are understood to mean from a position facing in the direction of travel.

Permission must be secured before any parts are returned for credit. When parts are returned, the freight must be prepaid or arrangements made so that they can be brought in by our trucks.

**"NOTE"**

Parts are identified by reference numbers.

**DO NOT USE REFERENCE NUMBERS AS PART NUMBERS.**

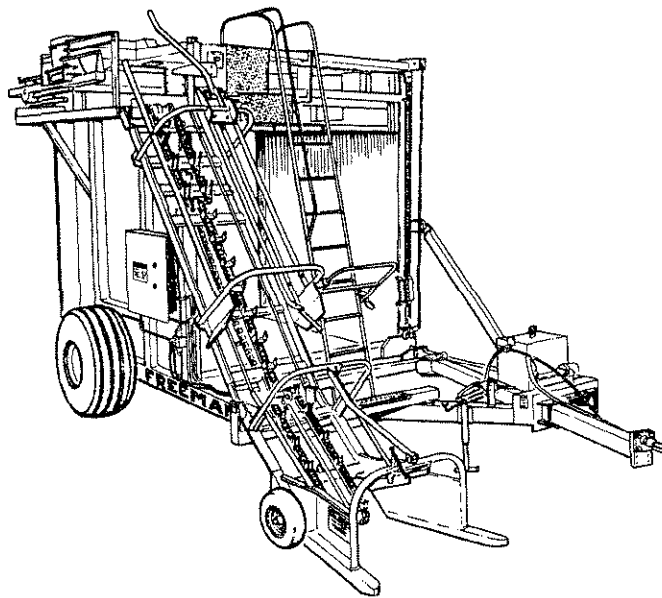
See parts list for correct part numbers.

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# OPERATOR MANUAL

for

## MODEL 7000 PULL TYPE BALEWAGON



### POLICY

1. It is the policy of J.A. Freeman & Son, Inc. to constantly improve it's products whenever it is practical to do so.
2. J.A. Freeman & Son, Inc. reserves the right to redesign or change it's equipment or component parts thereof without incurring any obligation to install or furnish such changes on equipment previously delivered.
3. Unauthorized changes or additions to equipment manufactured by J.A. Freeman & Son Inc. relieves the company of further responsibility for warranted operation and breakage replacement.

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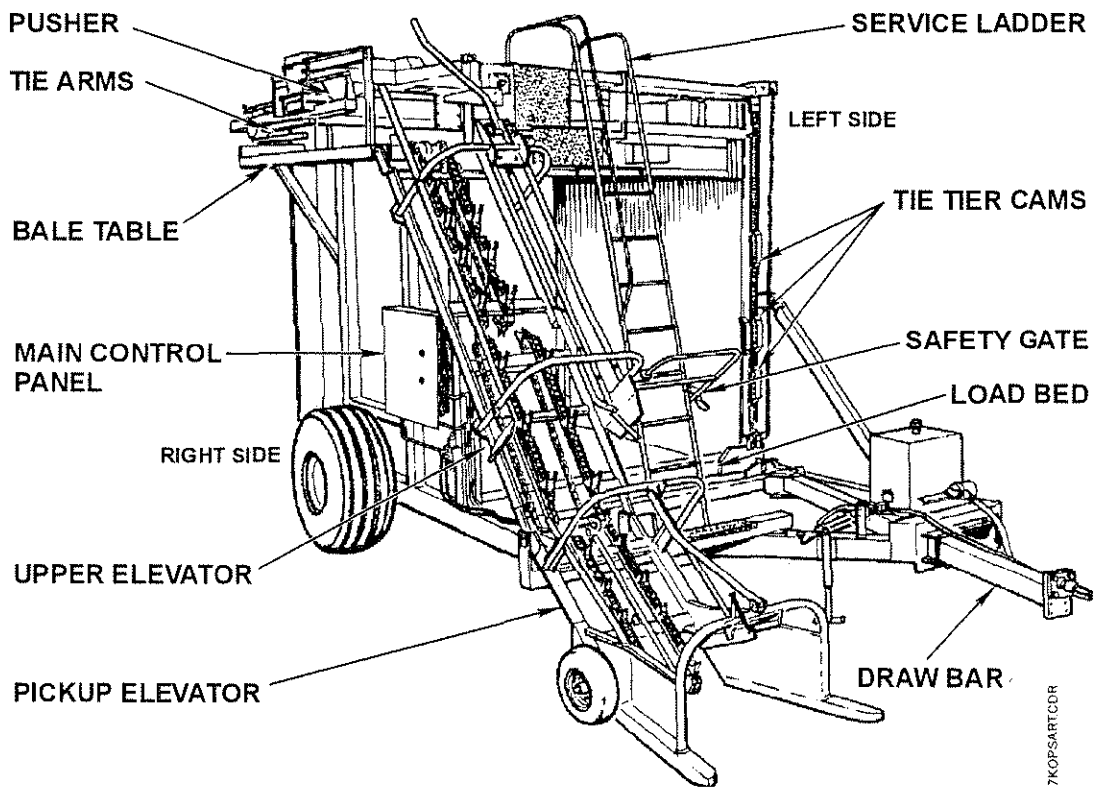


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# FREEMAN MODEL 7000 BALE ACCUMULATOR



## PREPARATION:

1. Connect drawbar to tractor, making sure hitch pins are in place.
2. Connect hydraulic pump to PTO shaft, make sure that torque chain is connected to drawbar as to eliminate movement of the pump when PTO is engaged. Make sure to connect safety chain.
3. Connect the black power supply wire to a 12 volt negative ground power source, and the white ground wire must be connected to a sufficient ground.
4. Mount the accumulator control box to a convenient location on the tractor.

The accumulator was designed to collect, mechanically load, and position bales into a tight square stack. Stacks can be 7 tiers high with 16" (39cm) bales, or 8 tiers high with 14" (35.5cm) bales. The stack is normally 9.3 feet (284cm) high and 8 feet (240 cm) square. These dimensions make it ideal for transporting by truck.

Stack patterns for 2 tie and 3 tie bales are different. A switch on the relay chassis inside the relay box, (see *Fig. 1*) allows the operator to select the proper mode for the bales being stacked. To stack 14" (35.5cm) bales instead of 16" (39cm) bales the tie sequence activating cams must be adjusted. See page 9 for further details on cam location.

Bales to be stacked must be square, solid add 45" to 48" (114cm to 123cm) long.

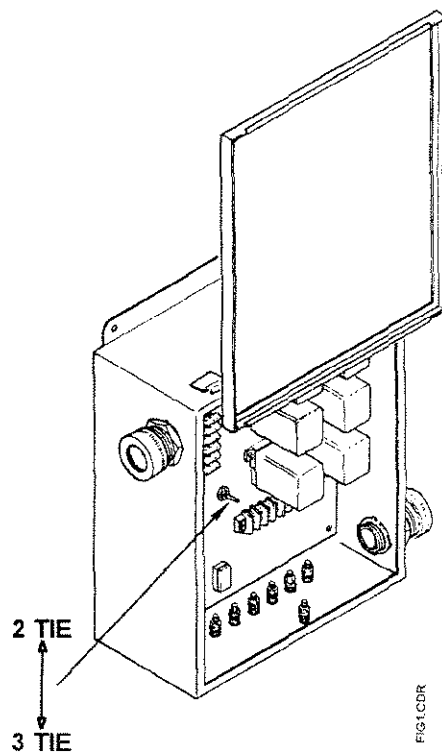
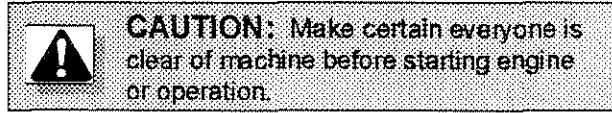


Fig. 1

## OPERATING INSTRUCTIONS:

1. On the control box locate the Master Switch. Move it to the "On" (see Fig.2) position. Be certain all personnel are clear of the machine. The safety gate on the service ladder must be closed for the control circuit to be activated.



2. Engage tractor PTO.

3. Position the pickup chute down with the rocker switch on the control panel (Fig.2).

4. Make sure that the load bed is in the highest position at the top of the Accumulator. This is controlled by the Bed and Push Off Switch on the control box

5. With the Master Control "On" and the PTO engaged, lower the pickup mechanism and begin to load bales. As two bales enter the upper bale table, the pusher is activated and the bales will be moved on to the load bed. This process is repeated until ten two string bales are on the load bed. As the last two bales are moved onto the load bed the bales depress the index paddle. This signals the load bed to lower until the index paddle is released. This stops the load bed in position for the next tier to be formed.

6. The primary bale pattern as described in step 5 is referred to as pattern No. 1 (see Figs.3 & 5). On selected tiers the control circuit is signaled to create a "Tie Tier." Two types of tie tier will occur. The tie patterns are referred to as No. 2 "Tie Tier" and No. 3 "Interlocking Tie Tier." The control box contains signal lights to indicate to the operator if a tie sequence is activated (see Fig.2). There are seven lights to represent each step of the tie sequence. Tie pattern No. 2 requires seven steps to complete the tier. Tie pattern No. 3 requires 6 steps to complete the tier. The number of lights lit represent each step of the process.

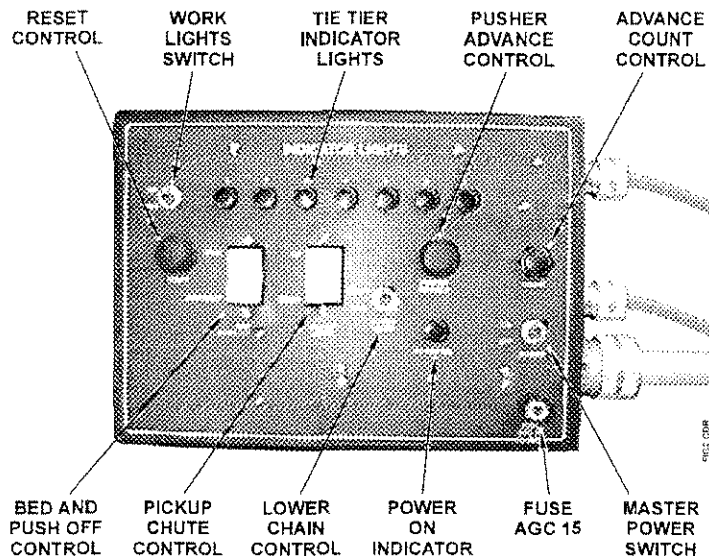
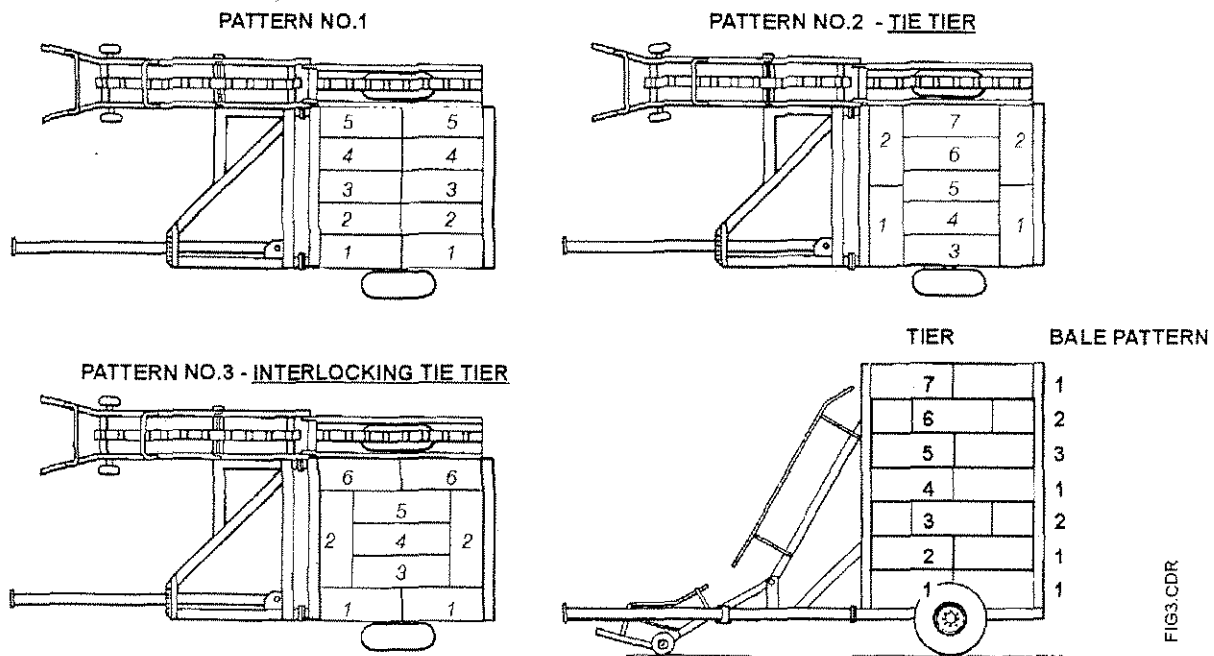


Fig.2



NOTE: Order of bales loaded into tiers shown by *Italic numbers*.  
 Illustration shows 2-Tie patterns, for complete Bale Tier Stack Patterns see Fig.5.

Fig.3

### TIE TIER SEQUENCE OF OPERATION PATTERN NO. 2 TIE TIER:

- I. When the tie sequence is activated, indicator light No. 1 illuminates (see Fig.4).
  - A. Pattern No. 2 begins when two bales enter the upper bale table. The pusher which has two extend positions (long and short stroke), is activated and the tie arms swing out to turn the bales to the outside edge of the load bed. The bales are then pushed across to the left hand side of the load bed, completing a "pusher long stroke." When the pusher returns light No. 2 is lit.
  - B. Two bales enter the upper table. The pusher is activated and the bales are turned and pushed onto the load bed, completing a "pusher short stroke." When the pusher returns light No. 3 is lit.
  - C. The third step requires only one bale to activate the pusher. The pusher positions this bale in the center of the bales previously positioned in step 2. Step 3 occurs 5 times. Light No. 4, 5, 6 and 7 illuminate with each step. As the ninth bale (step 7) is pushed across onto the load bed the index paddle is depressed and the load bed lowers until the paddle is released.

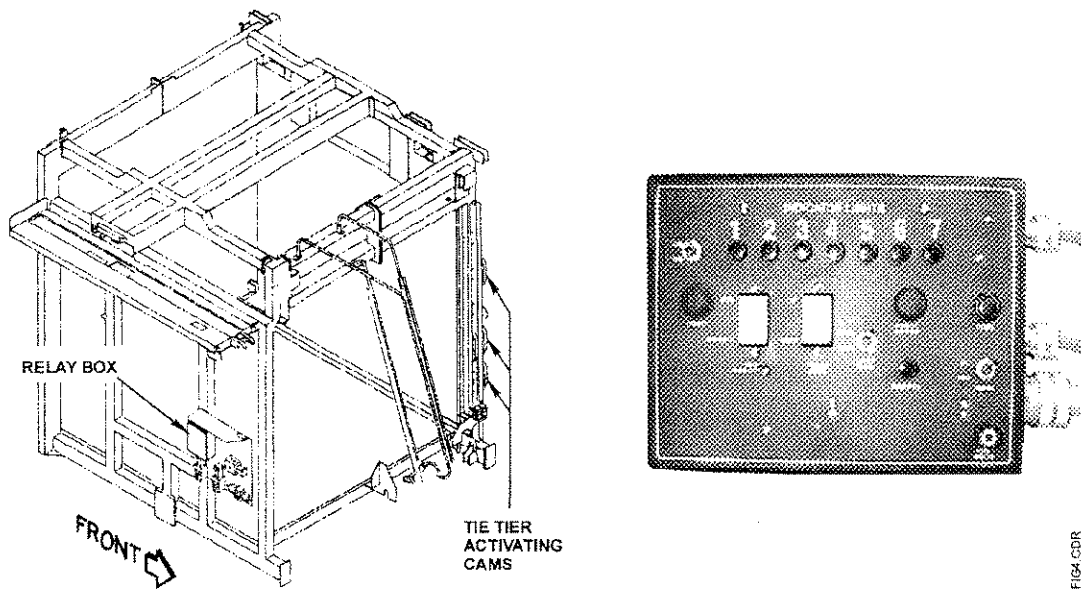


Fig.4

**TIE TIER SEQUENCE OF OPERATION PATTERN NO. 3 INTERLOCKING TIE TIER:**

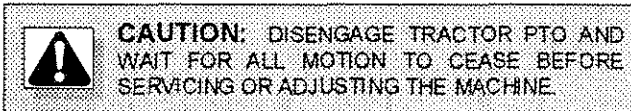
- I. When the tie sequence is activated, indicator Light No.1 illuminates.
  - A. Pattern No. 3 begins when two bales enter the upper bale table. The pusher which has two extend positions (long and short stroke), is activated and pushes the bales across to the left hand side of the load bed, completing a "pusher long stroke." When the pusher returns light No.2 is lit.
  - B. Two bales enter the upper table. The pusher is activated and the bales are turned and pushed onto the load bed, completing a "pusher short stroke." When the pusher returns light No.3 is lit.
  - C. The third step requires only one bale to activate the pusher. The bale is pushed on to the load bed in-between the bales previously positioned in step two, completing a "pusher short stroke." This step is repeated for step 4 and 5. Each time the pusher returns the next light is lit. When three bales have been positioned in the center of the load bed the pusher returns and light No.6 is lit.
  - D. Two bales enter the upper table. The pusher is activated and the bales are pushed onto the load bed, the index paddle is depressed and the load bed lowers. When the index paddle is released the load bed stops in position to receive bales for the next tier to be formed.

## TO STACK 3 TIE BALES:

1. Locate the mode selector switch inside the relay chassis on the right side of the machine (see *Fig. 1*). Select the 3 tie position.
2. The process for staking 3 tie bales is the same as 2 tie bales. The bale width is greater therefore less bales are stacked on each tier. Six steps are required to make each tie tier. The indicator lights operate the same as with 2 tie bales. Because only six steps occur to stack three tie bales in pattern 2, only six indicator lights will be lit. Five steps occur in pattern 3, only five indicator lights will be lit.
  - A. Pattern No.1 will contain 8, 3 tie bales. (see *Fig. 5*)
  - B. Pattern No.2 will contain 8, 3 tie bales. (see *Fig. 5*)
  - C. Pattern No.3 will contain 8, 3 tie bales. (see *Fig. 5*)

## INSTRUCTIONS FOR RESET OF PATTERN SEQUENCE:

If the loading sequence is interrupted on a tie tier it is necessary reset the control circuit. Use the Tie Light Advance Button on the Control Box to reset the control circuit and return the system to the proper step of the loading sequence. If a loading malfunction occurs the following process is used to re-establish correct loading pattern sequence.



1. Stop the tractor and lock tractor transmission and/or brakes. Disengage tractor PTO and shut off the tractor engine. Block wheels if necessary to prevent movement of the machine.
2. Correct the problem or malfunction. Determine which step the control circuit should be operating to continue loading.
3. Press the tie light Advance Button to move the indicator lights, to the position that represents the step of the stack sequence the control circuit should be operating.
4. Engage PTO and resume stacking.

## **OPERATION TIPS:**

1. Watch the Pickup Elevator and be sure bales do not hang or jam.
2. Each time the Load bed lowers to receive the next tier, visually check to see that it is positioned correctly.
3. Count the number of bales entering the upper table for each tier and keep track of the sequence.
4. While the pusher is positioning bales on the load bed, the upper elevator chain does not operate. The pickup chain can continue to operate for it is controlled by the operator. The pickup control switch on the control box will start and stop the pickup chain. Bales entering the pickup can be placed on the upper elevator while it is stopped. These bales, held on the upper elevator are immediately ready to enter the upper table as soon as the pusher returns. Greatest stacking efficiency will be realized if two bales are always on the elevator ready to enter the upper table.
5. As steps 3-7 of pattern No.2 and 3 are being formed, it will be necessary for the operator to allow only one bale at a time on the upper elevator waiting to enter the upper table. Use the pickup control switch to start and stop the pickup chain.
6. Operators learning to use the accumulator, should select a ground speed that allows plenty of time for the stacking functions to occur. Always operate the machine in a safe and cautious manner.
7. Count the bales that will form the last tier of the stack. Stop picking up bales as the 16th bale enters the pickup for 2 tie bales, or as the eighth bale enters the pickup for 3 tie bales.
8. When moving from the field to the unloading area or from field to field be sure there is sufficient overhead clearance.

## **TIE TIER CAM ADJUSTMENT:**

### **STACKING 14", 15", OR 16" HIGH BALES**

To properly stack bales of a height different than what the machine is currently set up to handle it is necessary to reposition the Tie Tier activating cams. These cams activate limit switches that communicate the position of the load bed to the Control Circuit. The Control Circuit then determines which tie sequence should occur. See page 4, Fig.3 for the location of the Tie Tier activating cams.

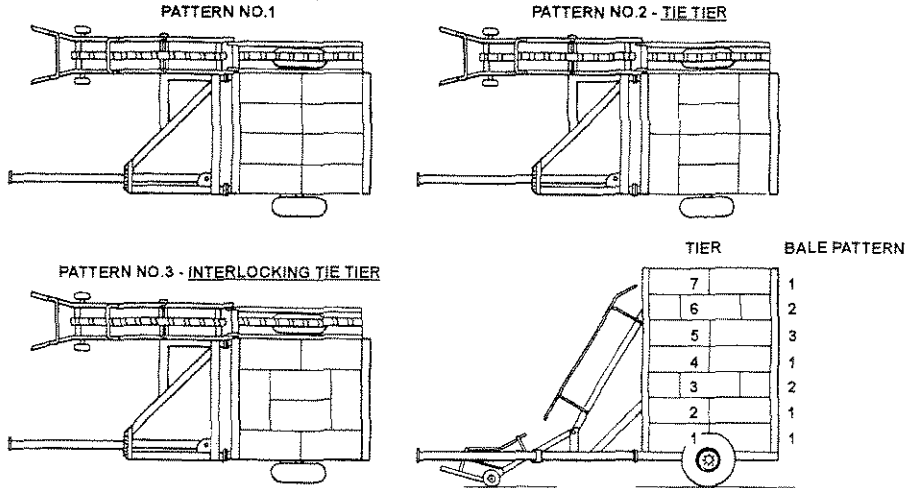
To stack 14" high bales instead of 16" high bales, the Tie Tier activating cams must be raised. Each cam must be positioned to correspond to the proper tier.

Tie Tiers may be added by installing additional cams.

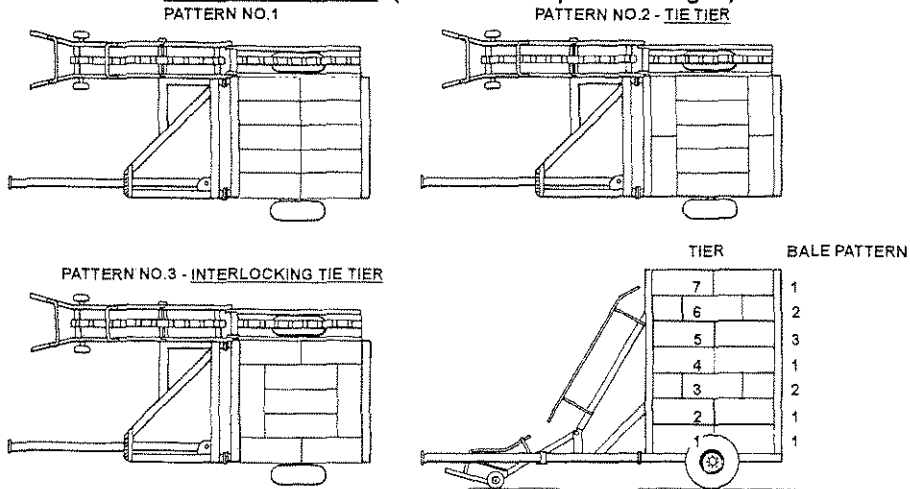


# BALE TIER STACK PATTERNS

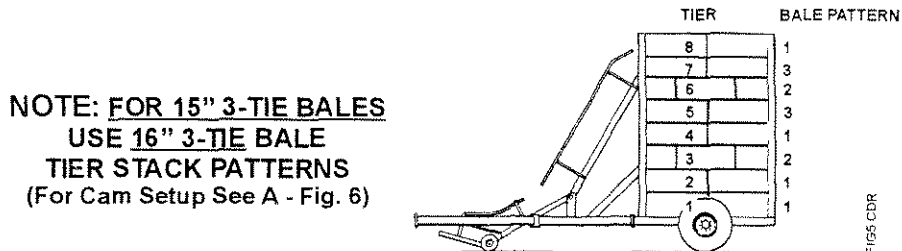
## 7 HIGH BALE TIER STACK PATTERNS FOR 16" & 17" 3-TIE BALES (For Cam Setup See A & B - Fig. 6)



## 7 HIGH BALE TIER STACK PATTERNS FOR 16" 2-TIE BALES (For Cam Setup See A - Fig. 6)



## 8 HIGH BALE TIER STACK PATTERNS FOR 14" 2 & 3-TIE BALES (For Cam Setup See C - Fig. 6)



F165 CDR

Fig.5

## TIE TIER CAM INSTALLATION

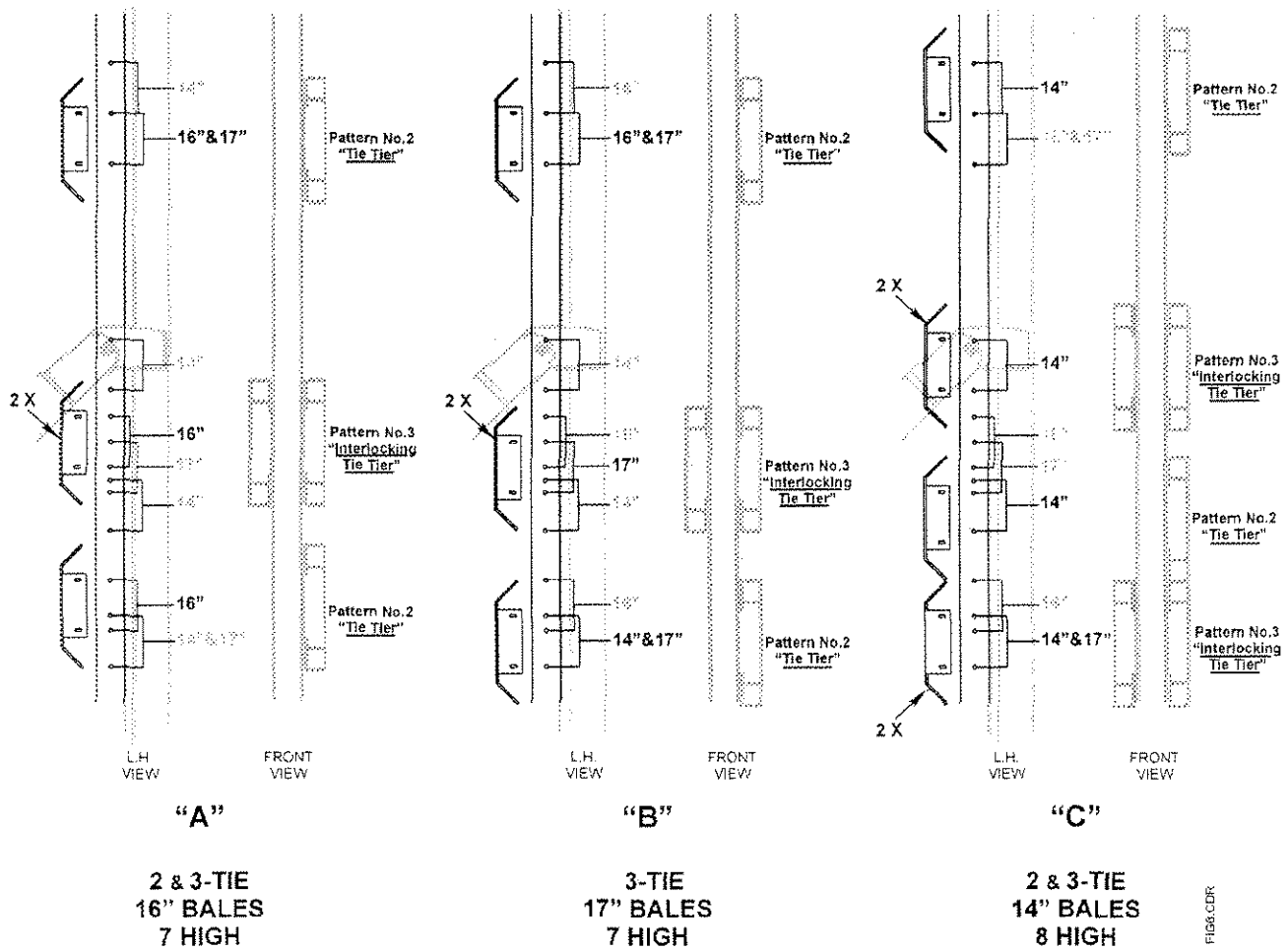


Fig.6

### UNLOADING

1. Select a level and accessible area to unload the accumulator.
2. On the control box locate the Bed Down and Pusher Out switch. Depress the switch. The load bed will lower and the Push Off Bar will push the stack off the accumulator. A warning tone will sound while the bed is in the down position.
3. When the stack is fully off the accumulator depress the Bed Up and Pusher in switch. Hold the switch until the bed has returned to the top of the accumulator and stopped.
4. Return to the loading site and resume stacking.

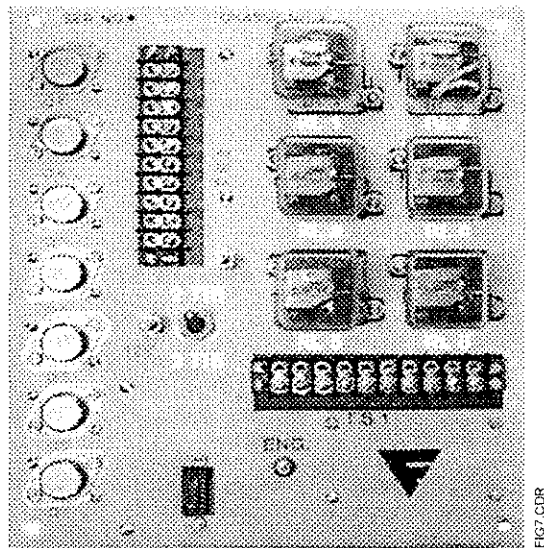


FIG. 7 CDR

Fig. 7

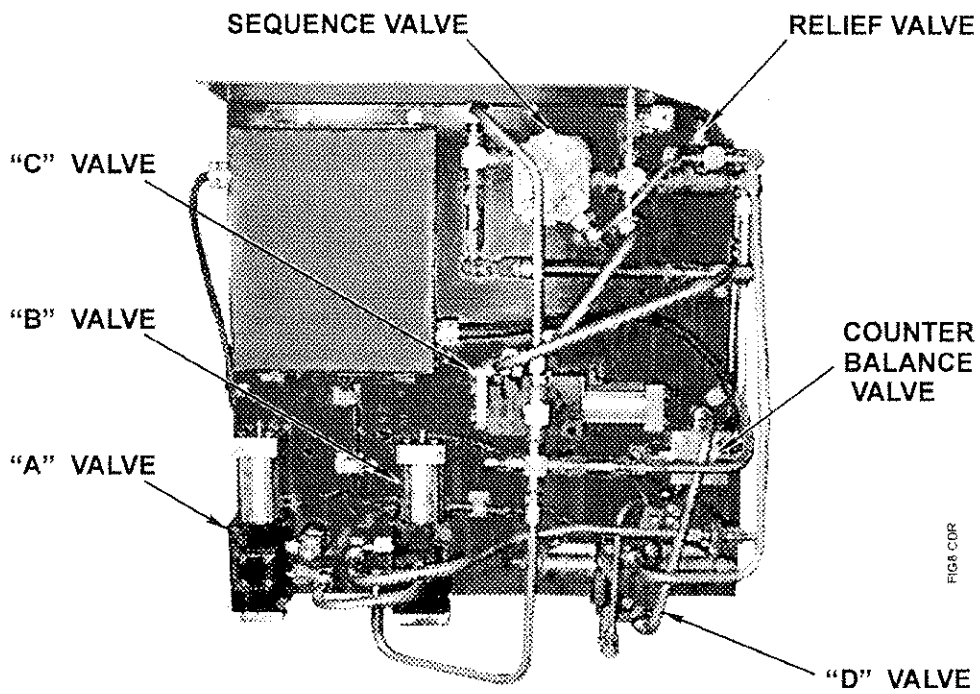
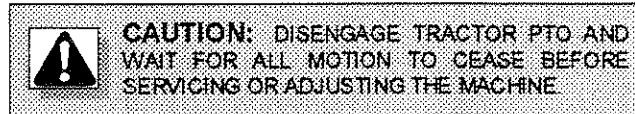


FIG. 8 CDR

Fig. 8

# FREEMAN MODEL 7000 TROUBLESHOOTING



## Control circuit will not operate.

Indications:

Power indicator light on control box does not illuminate.

Pick-up chains do not operate.

## Checks:

**Inspect 15 amp fuse on control box.** Replace if defective.

**Check power connection to battery.** Black power supply wire must be connected to 12 volt power source.

**Check ground wire connection to battery.** White ground wire must be connected to a sufficient ground.

**Check battery voltage.** Should be 12 to 14.5 volts.

**Safety gate open.** Close safety gate. Operate reset button to restart system.

**Faulty safety gate limit switch or switch actuator.** Check adjustment of limit switch arm.

**Faulty safety gate relay.** Replace relay (located inside control box).

## Pusher will not operate.

**Pusher delay switches not released.** Check switches at entry to bale table. Both switch paddles must be released for pusher to operate. Check switch paddles for mechanical faults. Check return springs on switch paddles. Check switches. A released switch is normally closed (operated) and allows voltage to reach switches on bale table.

**Pusher trip switches not depressed.** On pattern no.1 both switch paddles must be depressed for pusher to operate. Check switch paddles for mechanical faults.

Check switches. Switches allow voltage to activate pusher when operated. These switches are normally open until a bale operates the switch and the switch is closed.

**Relay 5 faulty.** Replace relay.

**Relay 6 faulty.** Replace relay.

**"A" valve not receiving voltage.** Spool sticking. The "A" valve directs hydraulic flow to the pusher when energized. Hydraulic flow is directed to the pickup and load bed when the "A" valve is not energized.

**"B" valve not receiving voltage.** Spool sticking. The "B" valve allows the pusher to extend when energized.

## Pusher Fails to return.

**Limit switches 2 or 3 (pusher return switches) not being operated.** When the pusher reaches the end of a short stroke limit switch 2 must be operated. At the end of a long stroke limit switch 3 must be operated. The switches are operated as the pusher frame contacts lever which depresses the switch.

**Limit switch faulty.**

**"B" valve sticking.** The "B" valve receives voltage and directs hydraulic fluid to extend the pusher. To retract the pusher no voltage is applied to the valve and spring pressure returns the spool to a centered position.

**Relay 6 faulty.** Replace relay.

### **Pusher operates to soon. Bales cut off at entry to bale table**

**Pusher delay switches faulty.** Pusher delay switches at the entry to the bale table signal the control circuit to start the pusher when they are released. If a bale does not adequately depress the delay switches while at the entry to the bale table the pusher may operate to soon and cut off the end of a bale. Check the switch mechanism and the limit switch and adjust or repair as necessary.

**Bale length to long.** Space is limited on the bale table. Excessive bale length may cause a bale to protrude into the entry to the bale table.

**Table chain speed to slow.** Chain speed of the upper elevator and bale table must be fast enough to allow the bale to enter the bale table area before the pusher begins to operate. The pusher operates as soon as the pusher delay switches are released

### **TIE TIER TROUBLESHOOTING.**

**No tie tier, pusher pushes short stroke as on normal cycle.**

**Tie cycle not activated. Tie cycle limit switches faulty.** Limit switches 5 and 6 on the left front corner of the load bed signal the control circuit to operate in a tie mode. These switches are operated by stationary cams on the left front corner of the machine. Check limit switches and their actuators for problems should a tie cycle fail to occur. A major misalignment of the load bed may affect the operation of limit switches 5 and 6. Check the guide rollers and lift chains on the load bed to assure proper alignment.

**No interlocking tie tier.**

**Cycle not activated or Limit switch faulty.** Limit switch 6 on the left front corner of the load bed signals the control circuit to create an interlocking tie. If this switch is not operated the control circuit will operate in standard tie mode. See possibilities listed above for "Tie cycle not activated."

**Relay 4 faulty.** Replace relay.

**Pusher operates, tie arms do not.**

**Tie arm linkage faulty.** Check the mechanical linkage that operates the tie arms. Check for broken bolts or missing parts. Tie arms are keyed to the tie arm shafts. Check to see that the keys are still in place.

**Relay 2 faulty.** Replace relay.

**"C" valve not operating.** Voltage is applied to the "C" valve and hydraulic fluid is directed to the tie arm cylinder to operate the tie arms.

**Control panel faulty.** Replace control panel.

**Pusher operates on short stroke only when a long stroke is desired, tie arms operate correctly.**

**Relay 1 faulty.** Replace relay.

**Long stroke return switch (L.S. 3) faulty.**

**Control panel faulty.** Replace control panel.

**Pusher operates slow or stalls, Tie arms operate normally.**

**Pressure setting to high on sequence valve.** Sequence valve faulty or mis-adjusted. The sequence valve

allows the pusher to operate only after the tie arm cylinder is fully extended. Foreign material in the hydraulic system may cause the valve to stick. Adjustment or Disassembly and cleaning of the valve may be required.

#### **Tie arms fail to extend fully before pusher extends.**

**Pressure setting to low on sequence valve.** Sequence valve faulty or mis-adjusted. The sequence valve allows the pusher to operate only after the tie arm cylinder is fully extended. Foreign material in the hydraulic system may cause the valve to stick. Adjustment or Disassembly and cleaning of the valve may be required.

#### **Tie arms fail to return when pusher returns.**

**Tie arm linkage faulty.** Check the mechanical linkage that operates the tie arms. Check for broken bolts, or missing parts. Tie arms are keyed to the tie arm shafts. Check to see that the keys are still in place. Counter balance valve faulty or mis-adjusted. The counterbalance valve creates a condition in the hydraulic circuit that causes the pusher to return only after the tie arms return.

#### **One or more Indicator lights on Tie indicator panel stay lit out of sequence.**

**Control panel faulty.** Circuitry in the control panel provides the path to ground for current required to activate the tie functions. A failure of the integrated circuit may cause malfunction of a tie cycle. One or more of the seven transistor may be grounded to the control panel. Check the insulator gasket under the transistor.

#### **Load bed will not index down or lower.**

**Index paddle defective or mis-adjusted.** A full tier pushed against the index paddle causes limit switch 7 to be operated. This signals the control circuit to lower the load bed. Check the paddle mechanism. It must operate the limit switch.

**Limit switch faulty or mis-adjusted.** Check limit switch 7 and its adjustment.

**"A" valve sticking.** The "A" valve directs hydraulic flow to the load bed when no voltage is applied.

**"D" valve faulty or sticking.** When energized the "D" valve directs hydraulic fluid to raise or lower the load bed.

**Counter balance faulty or mis-adjusted.** The counterbalance causes the load bed to lower slowly and smoothly unaffected by the weight of the stack on the load bed.

#### **Load push off will not operate.**

**Bale retainer limit switch mis-adjusted or faulty.** Limit switch 10 is mounted on the left rear top corner of the machine and is operated when the bale retainer raises. When L.S. 10 is operated current can reach the push off out solenoid. Check for proper operation of the bale retainer and the limit switch.

**Push off mechanism binding.** A broken chain or misalignment may prevent the push off bar from operating.

#### **Load bed will not raise.**

**Push off bar will not return to operate limit switch.** Limit switch 11 is operated by the push off bar in the returned or home position. When operated L.S. 11 allows current to reach the bed up solenoid.

**Push off mechanism binding.** A broken chain or misalignment may prevent the push off bar from operating.

## LIMIT SWITCH FUNCTIONS

**L.S. 1** Limit switch 1 is located near the center of the bale table. If a standard tier is being formed L.S. 1 operates in conjunction with L.S. 8 to activate the pusher. When the center bales of a tie tier are being positioned L.S. 1 alone can activate the pusher. L.S. 1 can be moved forward or back to affect the position of the center bale in a tie tier.

**L.S. 2** Limit switch 2 is located at the top center of the machine near the rear pusher track. This switch is operated by the pusher frame as it extends and signals the pusher to return to it's home position. L.S. 2 signals the pusher to return when a short stroke is required.

**L.S. 3** Limit switch 3 is located at the top left of the machine near the rear pusher track. This switch is operated by the pusher frame as it extends and signals the pusher to return to it's home position. L.S. 3 signals the pusher to return when a tong stroke is required during a tie cycle.

**L.S. 4** Limit switch 4 is located at the top right of the machine near the rear pusher track. This switch is operated by the pusher frame as it returns and signals the pusher to stop in the home position.

**L.S. 5** Limit switch 5 is located on the left front corner of the load bed. It is operated by a cam mounted to the left front corner of the machine. L.S. 5 signals the control circuit to form a standard tie tier.

**L.S. 6** Limit switch 6 is located on the left front corner of the load bed. It is operated by a cam mounted to the left front corner of the machine. L.S. 6 signals the control circuit to form an interlocking tie.

**L.S. 7** Limit switch 7 is located on the top left side near the center. L.S. 7 is operated by the index paddle. When operated L.S. 7 signals the load bed to lower.

**L.S. 8** Limit switch 8 is located near the front of the bale table. It is operated when the second bale enters the bale table. L.S. 8 and L.S. 1 on pattern no.1 operated together allow the pusher to extend.

**L.S. 9** Limit switch 9 is located on the right hand side of the machine at the top of the bale elevator. L.S. 9 prevents the pusher from operating until a bale has entered the bale table area.

**L.S. 10** Limit switch 10 is located on the left rear at the top of the machine. L.S. 10 is operated by the bale retainer as it opens when the load bed is lowered to unload a stack. When L.S. 10 is operated the control circuit directs power to the load push off bar to push a stack off the load bed.


**L.S. 11** Limit switch 11 is located at the front center of the load bed. L.S. 11 is operated by the push off bar as it is returned to the home position. When L.S.11 is operated the load bed can be raised from the unload position to load position.

**L.S. 12** Limit switch 12 is located on the left hand side of the machine near the load bed lift cylinder. L.S. 12 is operated by a cam on the end of lift cylinder rod. When operated L.S.12 stops the load bed at the uppermost position.

**L.S. 13** Limit switch 13 is located on the service ladder at the safety gate. L.S. 13 prevents the machine from being operated with the safety gate open.

**L.S. 14** Limit switch 14 is located at the top of the bale elevator near the entry to the bale table. L.S. 4 works the same as L.S. 9 to prevent the pusher from operating until the bale is completely on the bale table.

# ELECTRICAL COMPONENT LOCATION

 **CAUTION:** DISENGAGE TRACTOR PTO AND WAIT FOR ALL MOTION TO CEASE BEFORE SERVICING OR ADJUSTING THE MACHINE.

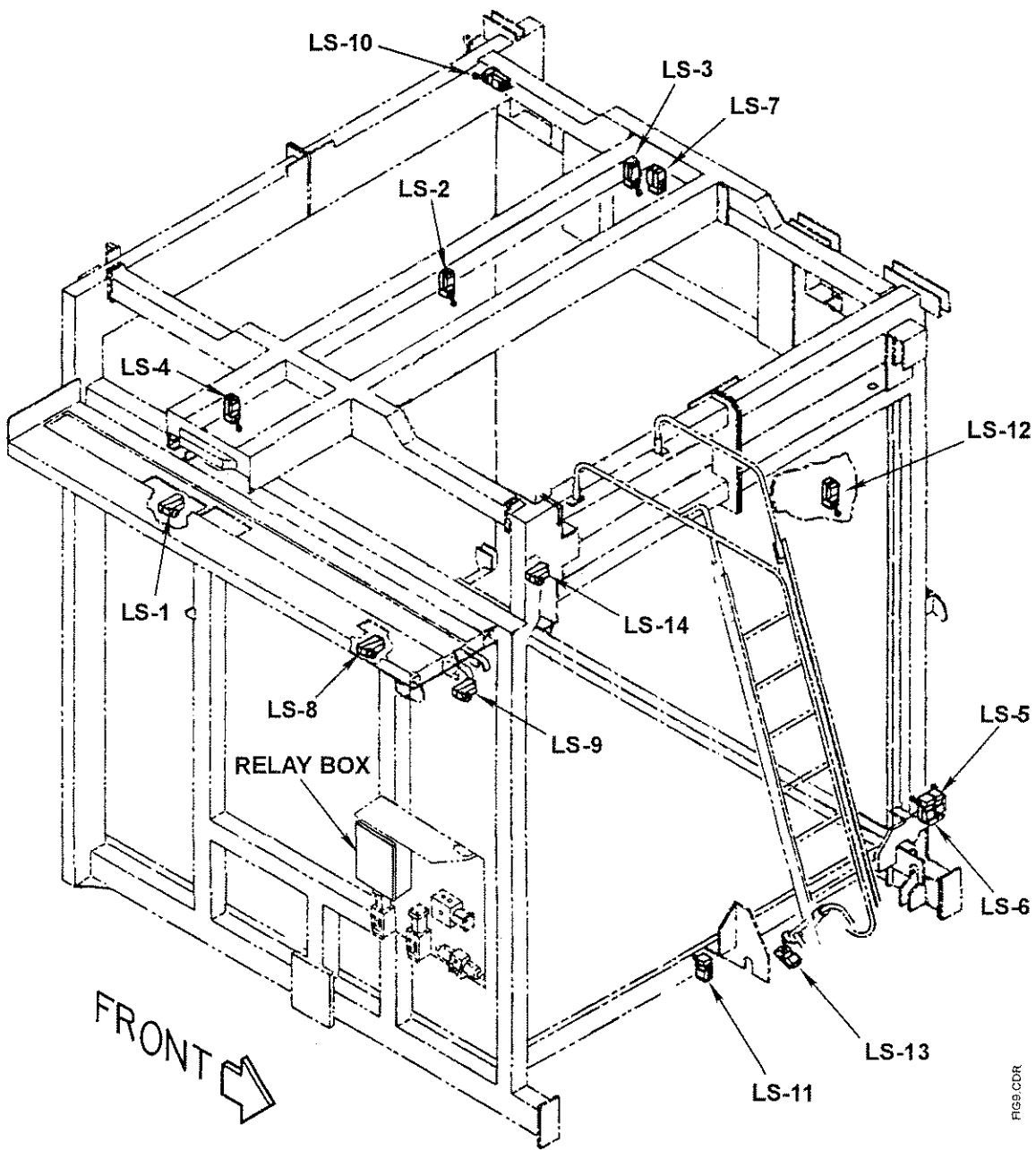
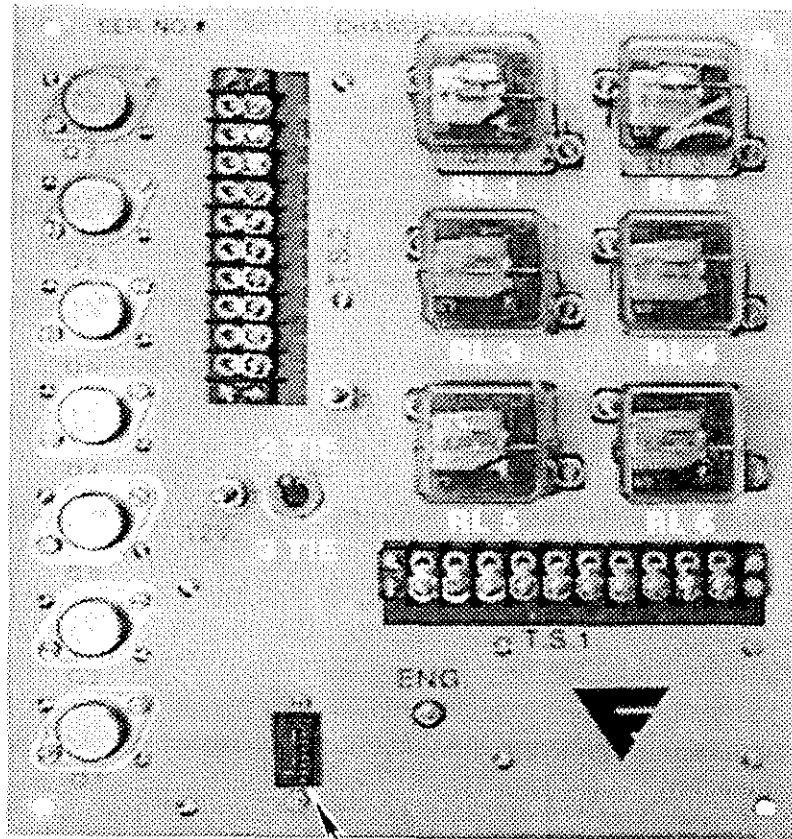


FIG.9 CDR

Fig.9





INTEGRATED CIRCUIT

Fig.10

## CONTROL PANEL RELAY FUNCTIONS

**R.L. 1** Relay switch 1 - Long Stroke Selector. Normally unenergized. When energized, this relay disables the L.S. 2 (Short Stroke) limit switch circuit, and enables the L.S. 3 (Long Stroke) limit switch circuit, causing the pusher to make the first long stroke during a tie tier. When unenergized, the pusher is controlled by L.S. 2 and continues to make short strokes. (pattern 1, *Fig.5*)

**R.L. 2** Relay switch 2 - Tie Arm Selector. Controlled by the Integrated Circuit (Counter) and is normally unenergized. When energized, this relay causes the pusher's tie arms to extend, during the pusher's long stroke and the first short stroke of a tie tier. (pattern 2, *Fig.5*)

**R.L. 3** Relay switch 3 - Center Bale Selector. Controlled by the Integrated Circuit (Counter) and is normally unenergized. When energized, this relay enables the L.S. 8 (1st Pusher Trip) limit switch circuit, causing the pusher to make short strokes for the center bales during a tie tier. (pattern 2, *Fig.5*)

**R.L. 4** Relay switch 4 - Sequence Selector. Normally unenergized. When energized by L.S. 6 on a interlocking tie tier, this relay redirects the output signals from the Integrated Circuit (Counter) causing the pusher to tie a interlocking tie tier. (pattern 3, *Fig.5*)

**R.L. 5** Relay switch 5 - Mode Selector. Controlled by L.S. 6 and is normally unenergized which allows the bale table chains to run and the bed to index, but the pusher cannot operate. When energized, the bale table chains run, the bed will not index and the pusher can operate.

**R.L. 6** Relay switch 6 - Pusher Control. Normally unenergized. When energized by L.S. 1 or the manual Pusher Advance button (see *Fig.2*), this relay becomes latched (held energized) and controlled by L.S. 2 or L.S. 3 (pusher - Long or Short Stroke limit switches). When energized, the pusher advances. When unenergized, the pusher and tie arms retract.

**I.C.** Integrated Circuit - Counter. Controls the indicator lights during all bale tier stack patterns. Controls the pusher/tie arm movements during tie tiers. The integrated Circuit is a durable and reliable component that plugs into the control panel. Extreme care must be used in the unlikely event that it needs to be replaced. The installer must be sufficiently grounded with the panel to prevent damage to the circuit from voltage spikes.