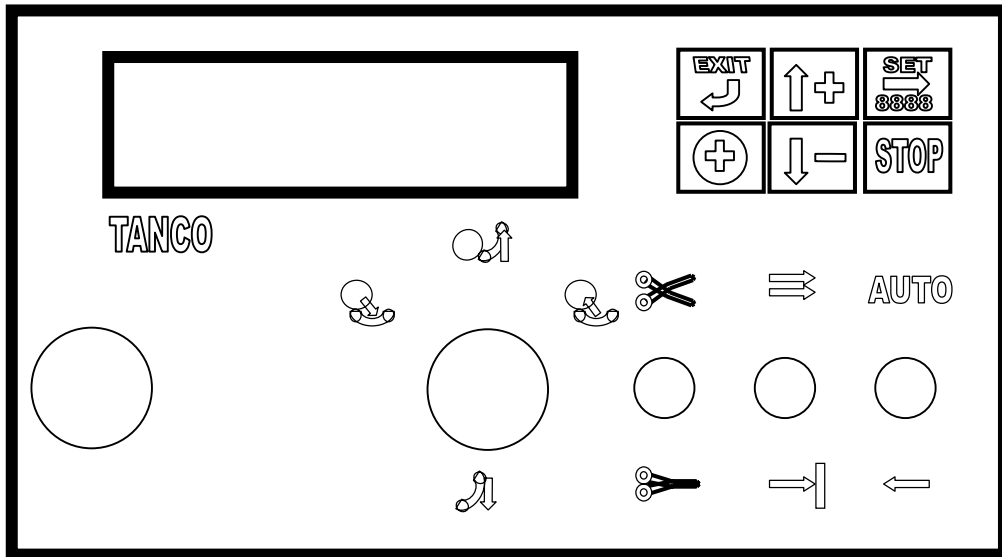
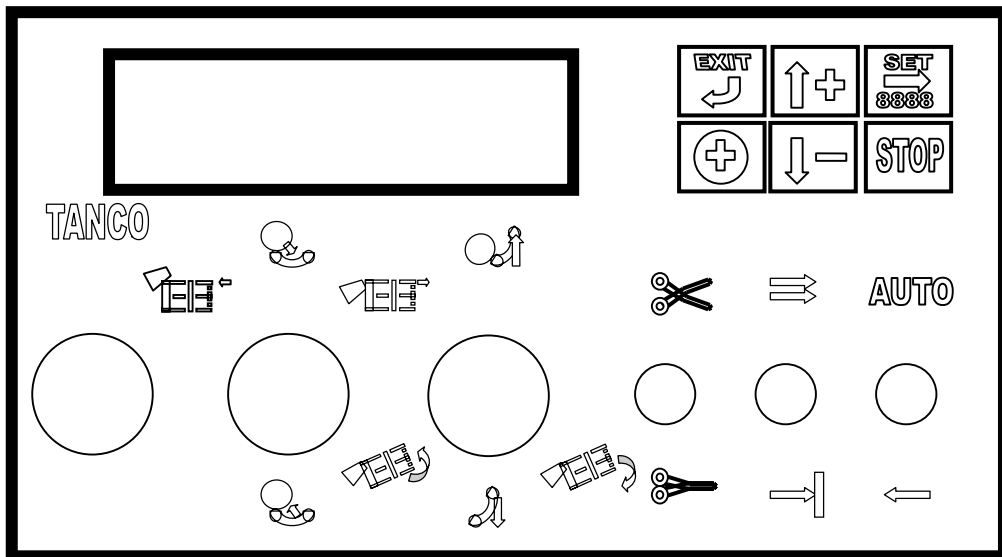


580A controller version





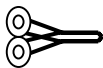



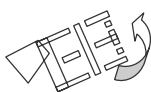



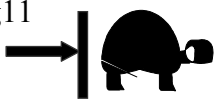
1080A controller version.


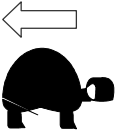




The TANCO wrapper machine controller is an advanced automatic system. It both control and monitors the moving machine parts and thereby provides for an optimal efficient and safe machine operation. The system gives detailed instructions and messages via the 40 character alphanumeric display, enabling the operator to monitor the operation of the wrap machine at any instant.

The system is equipped with various test facilities, warning messages, error messages and instructions making the system superior in terms of facilities, service and operation.

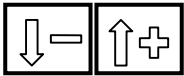
THE DISPLAY UNIT AND PANEL FUNCTIONS


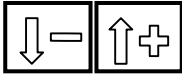
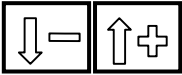
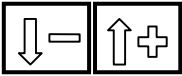
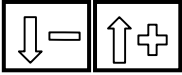

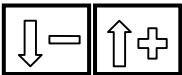
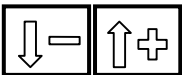
SWITCH FUNCTIONS	EXPLANATION.
Fig1 	Tip off the bale on manual instruction.
Fig2 	Tip table back to horizontal on manual instruction.
Fig3 	Close cutter on manual instruction.
Fig4 	Open cutter on manual instruction.
Fig5 	Lower load arm on manual instruction.
Fig6 	Raise load arm on manual instruction.
Fig7 	Raise elbow on manual instruction (1080A only)
Fig8 	Lower elbow on manual instruction (1080A only)
Fig9 	Release bale on manual instruction (1080A only)
Fig10 	Grab bale on manual instruction (1080A only)
Fig11 	Turn table seek next position, for load or offload, with slow speed on manual instruction.

























	<p>Turn table rotate fast on manual instruction. The turn table will start in slow mode, accelerate and decelerate to the slow mode before stopping. The turn table will stop in any position when the switch is released.</p>
<p>Fig13</p> 	<p>Turn table rotate slow in reverse on manual instruction. The turn table will stop in any position when the switch is released.</p>
<p>Fig14</p> <p>AUTO</p>	<p>Auto start the wrapping cycle. The “auto” command will start the wrapping cycle at a point defined in the program setting. This point may be set to, load bale automatically or start the cycle after the bale loaded automatically or wait for auto command when the bale is loaded. When the turntable is running, an auto command will shorten the program cycle, decelerate on the next passing of the offload position and stop on the following complete turn. This cycle is considered completed.</p>
<p>Fig15</p> 	<p>Depressing STOP will stop the cycle at any point in the cycle. An auto command will restart the cycle without and disturbance of the program cycle and maintain status of all functions operated manually between the stopping and the restarting of the cycle.</p>
<p>Fig16</p> 	<p>Depressing this button provides for the possibility to increase the required number of table turns for the cycle in progression. Each push will increase the turns by one for that cycle only.</p>









THE DISPLAY MENUES.

At the operator level there is a number of menus enabling the operator to perform various tests and adjustments to the machine operation. Should adjustments of parameters that not are accessible to the operator be required, please contact the TANCO dealer or TANCO.

<p>DISPLAY INDICATION</p>	<p>FOR NEXT VIEW DEPRESS</p>	<p>DESCRIPTION.</p>
<p>WRAP CYCLE 15: 20 0</p> <p>BALES: 1 324</p>		<p>The operative display that shows the commonly most needed information. The number 15 indicates the actual number of turntable revolutions at this moment. The number 20, is the preset number of turntable revolutions required to wrap the bale.</p>

DISPLAY INDICATION	FOR NEXT VIEW DEPRESS	DESCRIPTION.
<p>ACTUAL RPM 29 ALARM LIMITS: 16 - 30</p>		<p>The 16 - 30 indicate the programmed limits of the turntable speed. Should the speed exceed 30 rpm or fall below 16 rpm, the audio alarm will be engaged and the display will show this message. The Actual RPM shows the wrapping speed at any given instant.</p>
<p>BALE COUNTERS PRESS SET TO ENTER</p>		<p>The system has all in all 10-bale counters. When entering this display, it is possible to inspect: Total (sum of all bale counters.) Machine total (the sum of all bales ever made on the machine. This is not a reset able value.)</p>
<p>BALES TOTAL: XXXXX MACHINE TOTAL: XXXXX</p>		<p>Bales total. As below but a reset able function. Machine total displays the total quantity of bales made on the machine in total. This is not a reset able function.</p>
<p>COUNTER: 1:XXXX 2:XXXX 3:XXXX</p>		<p>Each counter display contains 3 counters.</p>
<p>COUNTER: 4:XXXX 5:XXXX 6:XXXX</p>		<p>Each counter display contains 3 counters</p>
<p>COUNTER: 7:XXXX 8:XXXX 9:XXXX</p>		<p>Each counter display contains 3 counters</p>
<p>WORKING HOURS: 123 MACHINE TOTAL: 798</p>		<p>Displays the number of working hours of the machine in 1 week, day or other. (reset able) and the total number of the machine operating hours. (not a reset able facility.)</p>
<p>SETUP (580A,TRAILED) PRESS SET TO ENTER</p>		<p>The operator may here change some parameters relating to the machine in order to alter the machine cycle, sensor setup, hydraulic flow table selection and other different options.</p>

DISPLAY INDICATION	FOR NEXT VIEW DEPRESS	DESCRIPTION.
WELCOME TO SETUP! V	 	
ROTATE 90 DEGREES AFTER TIP FORWARD TO SENSOR: YES	 	Defines the loading position 90 degrees counter clockwise to the offloading position.
ROTATE 90 DEGREES AFTER TIP: NO	 	Defines the loading and off loading position. To be the same turntable position.
SENSOR SETUP. PRESS SET TO ENTER.	 	Entering the sensor setup level.
CUT NOW SENSOR INSTALLED: YES	 	The film cutter will be activated upon signal from this sensor.
ROTATE LOAD-POSITION SENSOR INCLUDED: NO	 	Defines if there is a load position sensor installed.
LOAD ARM UP/DOWN SENSOR INCLUDED: YES	 	In order to achieve automatic loading of the bale a load arm sensor is required installed.
HARDWARE TEST PRESS SET TO ENTER	 	The hardware test program is a tool facility enabling and guides the operator and service people to test and inspect almost all functions, switches, sensors and push buttons on the system. It also contains a battery supply voltmeter which automatically will be displayed should the voltage drop below 8 volt during the operation.
SUPPLY VOLTAGE: xx.xV LAST DROP: xx.xV	 	Displays the instantaneous battery supply loaded and off load. The last drop is the lowest voltage supply measured during current surge when activating the hydraulics.
SENSOR (input) TEST. PRESS SET TO ENTER	 	Entering the sensor / digital input test facility.
LOAD ARM DOWN, NO: 16:0 CUT / HORIZONTAL, NO: 17:0	 	20:0 MEANS TERMINAL OR PIN NUMBER 10, 0 MEANS INACTIVE. WHEN ACTIVE THE STATUS CHANGES TO 20:1
ROTATE (TIP). NO: 18:0 INFRA RED REC. NO: 19:0	 	

DISPLAY INDICATION	FOR NEXT VIEW DEPRESS	DESCRIPTION.
TEST KEYS PRESSED: XXX.XXX	 	Enables the testing of each push button on the control panel.
TEST SWITCHES ACTIVATED:XXXX.XXXX.XX	 	Enables the testing of each function switch on the control panel.
TEST RELAYS, 0=OF XXXXX.XXXXX.XXXXX (12)	 	Enables the testing of each relay output function for the hydraulics on the controller
TEST. IR REMOTE CONTROL: 00 00 00 00	 	Enables to test the IR receiver and transmitter functions.

Operating modes.

The system is designed so that the automatic mode and the manual mode are separated with a STANDBY MODE. This means that when operated in the automatic mode, all manual commands are ignored with the exception of the function button for the application of additional turntable revolutions and the stop button. This also gives the advantage of interrupting and restarting the cycle at any instant without the system losing track of the cycle state. All functions may be manually operated and are only accessible when in standby mode.

All safety criteria are active in both the manual and automatic operation.

STANDBY MODE.

Standby mode is the waiting state between the automatic mode and the manual mode. Standby mode is automatically resumed when:

1. An automatic cycle is completed.
2. Between cycle steps, Example: The wrapping cycle is completed and the system announces that it is ready to offload the bale. **It is here in STANDBY for an operator command** for manual or automatic function. An AUTO command will here instruct the machine to advance to the next logical step in the auto cycle, loading, offloading or start wrapping.
3. Stopping the cycle at any stage will bring the system into standby mode.

MANUAL MODE.

The manual mode, is accessed by activating one of the manual functions switched when the machine is inactive (standby mode). Any machine function is accessible provided that it is a “ legal “ operation. If the operator requests an illegal function such as offloading a bale while the turn table is incorrectly positioned, the system will refuse to perform the operation and state in the display the reason for the refusal, enabling the operator to correct the machine status before the requested function can be made active.

AUTOMATIC MODE.

The machines are generally operated automatically during the actual wrapping cycle to the offloading stage. The controlling system will with its standard factory settings, automatically control the machine with AUTO commands given on the AUTO switch by the operator. For every program step, the machine has completed, the machine will stop and wait for further instructions from the operator.



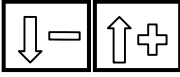
Upon the completion of a wrapping cycle, the system will via the audio alarm and display, inform the operator that the wrapping cycle has now been completed (program number is equal to actual number of turntable revolutions, e.g. 16: 16). Now yet an AUTO command will offload the bale.

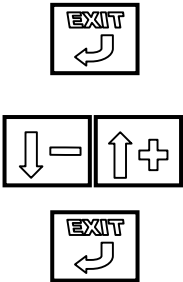
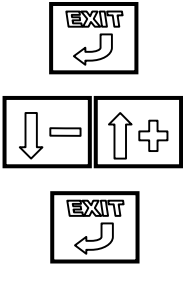
SETTING UP THE SYSTEM:

All functions are pre-adjusted from the TANCO factory and commonly the only required adjustment is the turntable revolutions required.

CYCLE PROGRAMMING.

- 1: Programming the required number of turntable revolutions. (changing from 20 to 25 turntable revolutions.)
- 2: Choosing 1 of the 9 Bale counters.

DISPLAY INDICATION.		DESCRIPTION.
WRAP CYCLE 0 : <u>20</u> 0 BALES : 1 324	 	To enter programming mode, push and hold the SET button for 1 second. The highest value in the program number will now flash, meaning that it may now be changed. As the number is to be changed from 20 to 25 turntable revolutions the number 2 is not required changed therefore push “ SET” again to make the lowest number value flash. (eg. “0”)
WRAP CYCLE 0 : <u>25</u> 0 BALES : 1 3 2 4		Pushing MENU UP will increase the number value between 0 and 9. Similarly MENU DOWN will reduce the number value between 9 and 0. In this case push MENU UP 5 times to change the number from 0 to 5. Now the required turntable revolutions will read 25.

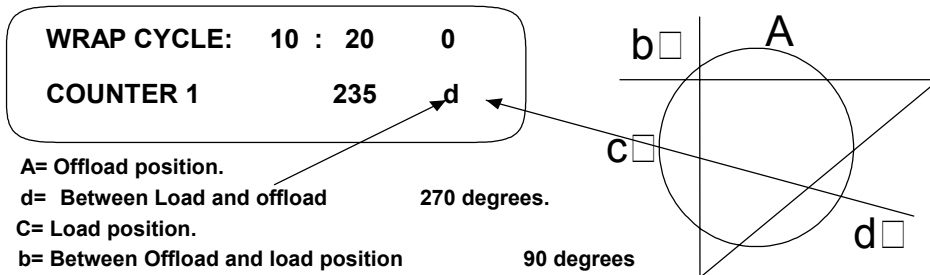
DISPLAY INDICATION.		DESCRIPTION.
WRAP CYCLE 0 : 25 0 BALES : <u>1</u> 324		<p>To exit programming of required turntable revolutions, push the EXIT button. The bale counter number (in this case counter number 1), will flash and the counter number is now changeable. The unit contains 9 individual counters and 1 counter for the sum of bales. The MENU UP or DOWN key is used to change the number. If the same counter is to be used push EXIT again.</p>
WRAP CYCLE 0 : 25 0 BALES : 2 125		<p>It is shown that the counter chosen, is counter number 2. This counter contains a quantity of 125 bales, stored in the memory. If it is required to continue the bale counting from this quantity and onwards, push EXIT to return to operative mode, or ZERO the counter on the MENU up or DOWN key and then EXIT to return to operative.</p>

A TYPICAL WRAP CYCLE .

When work begins the machine is normally transported with the LOADING ARM parked in the vertical position. The computer registers the lifting of the loading arm as the loading of a bale. Therefore the display will show that a bale is now located on the table. **Therefore the system will commence wrapping around an empty table, if the AUTO switch is activated when the loading is down. Therefore it is important that the loading arm is lowered using the joystick and the first bale in the first work cycle is loaded manually only.**

Provided the table remains in the loading position (C position on display), the system allows the full up and down movement of the loading arm, however if the system states there is a bale on the table, movement in the upwards direction will be stopped on the load arm sensor and lifting the loading arm further is only possible on the 2nd attempt.

WRAP CYCLE 0 : 20 0	← Bale on table.
BALECOUNTER 1 : 214 C	← Table in Load position.

DISPLAY.


A= Offload position.

d= Between Load and offload 270 degrees.

C= Load position.

b= Between Offload and load position 90 degrees

Loss of orientation may occur if the controller suffers power loss during a wrap cycle and the power loss occurs less than 3-4 revolutions before the cycle is completed. If there are 2 or more fast speed revolutions left of the cycle, the system will automatically regain the orientation.

In case of loss of orientation, less than 3-4 revolutions before the end of the wrap cycle, the table will then stop in Loading position. Now activate the positioning switch  to bring the Turntable into the offload position and manually offload the bale. Now tip the table to horizontal Position. The system now shows the correct position (A) on the display and will now seek load position (C) on the next auto start command.

ERROR MESSAGES ON THE DISPLAY.

The machine will in all cases monitor the status of the moving machine parts. Should the expected position or status of a sensor or device not comply with the safety requirements specified in the software program, the system will stop the machine cycle at the point where an error has occurred or when the operator requests an illegal or hazardous command. It will then via the display announce the reason for the command refusal. When restarting the machine the system will memorize the point where the cycle was interrupted and continue from the point where it stopped.

EXAMPLE:

A bale has been wrapped in the manual mode. The operator stops the wrapping cycle with the turntable away from the offload position. Now if an offload command then is given, the system will via the display announce that this is an illegal command, writing **TABLE NOT IN OFFLOADING POSITION..**”

**TABLE NOT IN
OFFLOADING POSITION**

In order to bring the machine into the correct status the operator must then using the manual TABLE position command to bring the system back to the logical sequence state.

Similarly if a manual wrap cycle is requested and the table is not horizontally positioned, the display will write that the table is not lowered to the horizontal position.

LOADING A SECOND BALE ONTO THE LOAD ARM WHILE WRAPPING.

When loading a bale onto the turntable, and an auto start command is given, the load arm will automatically return to STANDBY position and the wrapping cycle will automatically begin if the setup defines this. See SETUP, (AUTO LOAD BALE WITH LOAD-ARM: YES / NO). During an auto cycle the operator has permanent manual access to operate the load arm within limits defined in the program. When the operator approaches the 2nd bale and the load arm is

lowered to standby position to collect the 2nd bale, the load arm sensor is activated. When lifting the bale and the loading arm reaches the STANDBY position., the loading arm sensor will deactivate the load arm lifting function, preventing collision with the turntable.

After the bale in process is completed an AUTO command will tip off the bale and when the table again is horizontal, yet an AUTO command will load the new bale from the loading arm onto the table, again provided the system is defined to (**AUTO LOAD BALE WITH LOAD-ARM: YES**)

VERY IMPORTANT.

It is not recommended that the loading arm is operated during a table tipping down operation, as there is speed priority on the loading arm causing all other functions to go ½ speed. This may cause the table not to return completely to horizontal position after the off loaded of the bale.

TROUBLE SHOOTING.

The system **HARDWARE TEST PROGRAM** is an operator accessible test facility. Combined with the display messages, it makes trouble shooting a less complicated matter. It contains the following:

1. Build in voltmeter that currently is monitoring the battery supply voltage from the tractor battery.

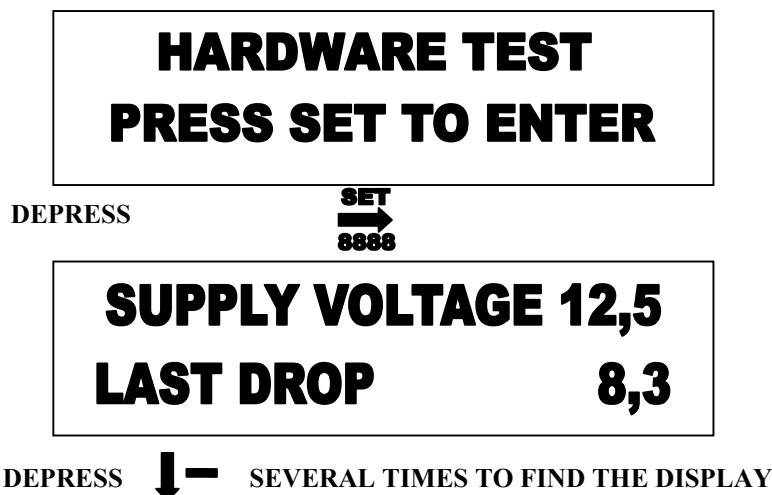
The voltmeter will simultaneously display:

- A. The instantaneous battery voltage (on load and off load)
- B. The most resent voltage (lowest voltage) caused by activating the hydraulics.

2. SENSOR STATUS.

This program enables the operator to test the individual sensors or sensor inputs and is found in the hardware test program. An active sensor will produce a “1” indication where an inactive sensor will produce a “0” statement. The display also states the terminal number of the sensors.

Use the MENU – button to locate the below display.



**SENSOR TEST (input)
PRESS SET TO ENTER**



**LOADARM DOWN No. 16, 0
CUT/HORIZONTALNO.17,1**

3. TESTING THE CONTROL PANEL PUSH BUTTONS.

When the display below is shown, an activation of the function select buttons will cause the display to write which button is pushed. The menu and programming buttons maintains their original purpose and the only button which will show a status change are the set, stop and “ reset / extra film layer buttons”.

4. TESTING THE OPERATION SWITCHES.

When the display below is shown, an activation of the operation switches and Start switch will cause the display to write the status change of the function switches activated.

Use the MENU – button to locate the below display.

**HARDWARE TEST
PRESS SET TO ENTER**

DEPRESS



**SUPPLY VOLTAGE 12,5
LAST DROP 8,3**

DEPRESS **↓** SEVERAL TIMES TO FIND THE DISPLAY

**TEST SWITCHES ACTI-
VATED: 00000000**

5.RELAY OUTPUT STATUS (amp pin output.) :

The relay output status: Indicates which hydraulic valves should be active when any operation is commanded. The operator / serviceman will from this information able to determine whether there’s a hydraulic or electrical defect. The status of the output is shown as a “1” for active and a “0” for inactive. The status of the output is shown as the pin number in the AMP connector and the terminal number in the termination box.

Depress the key **↓-** several times until the display below is shown.

**HARDWARE TEST
PRESS SET TO ENTER**

DEPRESS **SET**
→
8888

**SUPPLY VOLTAGE 12,5
LAST DROP 8,3**

DEPRESS **↓-** SEVERAL TIMES TO FIND THE DISPLAY

**TEST RELAYS
1030.0000.0AB0.000**

When testing a function e.g. Table rotate, a number of outputs are activated simultaneously as other devices usually are required activated at the same time such as the beacon and slow speed during the start of the wrapping cycle. In the above example the loading arm down function is active. The output no 1 is the Two speed valve (high speed), 3rd. output is the load arm down function, A (terminal output No.10) is the beacon and B (No. 11) is the JD. Output terminal.

Below it is shown which relays, the AMP pin numbers and terminal numbers are related to.

Amp pin no1. and term. no.1	Amp pin no.2 and term. no.2	Amp pin no.3 and term. no.3	Amp pin no.4 and term. no.4	Amp pin no.5 and term. no.15		
Two Speed valve	Load arm down	Load arm up	Table forward	Table reverse		
Amp pin no 6, 16and term. no 6.	Amp pin no7, 17and term. no 7.	Amp pin no.8 and term. no.8	Amp pin no.9 and term. no.9	Amp pin no.10 and term. no.10		
Cutter open	Cutter close	Off load	Tip to horizontal	JD valve		
Amp pin no.11 and term no11	Amp pin no.12 and term no.12	Amp pin no.13 and term. no. 13	Amp pin no.14 and term no.14	Amp pin no.15 and term no.15	Amp pin no.16 and with no.6	Amp pin no.17 and with no.7
Rotor lamp	close grab	Open grab	wrist up	wrist down	Cut close	Cut open

WIRING / TERMINATION / AMP PIN AND FUNCTION TABLE.

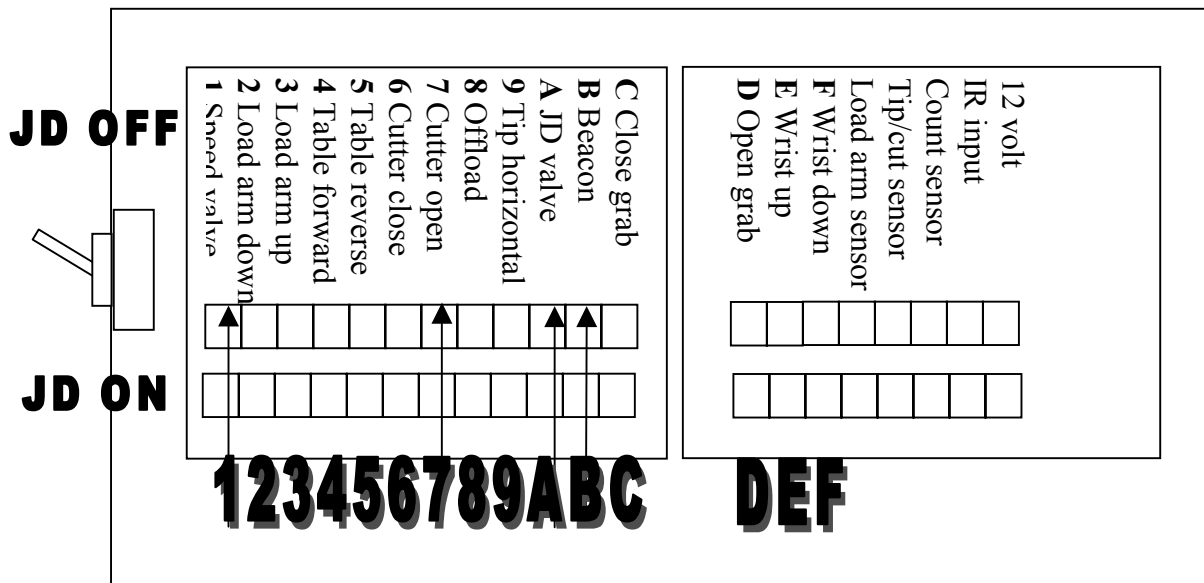
Wire and AMP number	Terminal number	Input & output function
1	1	Table slow/fast
2	2	Load arm down
3	3	Load arm up
4	4	Table forward
5	5	Table reverse
6&16	6	Cutter close
7&17	7	Cutter open
8	8	Tip up
9	9	Tip down
10	10	JD valve
11	11	Beacon
12	12	Close grab
13	13	Open grab
14	14	Elbow up
15	15	Elbow down
16&6	6	Cutter open
17&7	7	Cutter close
18		Ground
19	16	Infra-red sensor signal
20	17	Tip/cut sensor
21	18	Rotate tip position sensor
22	Ground	Ground
23	19	Load-arm sensor
24	20	12 volt for Infra-red receiver

TESTING INDIVIDUAL FUNCTIONS.

When testing a function for example turntable rotate, a number of outputs are activated simultaneously. Also other devices are usually required activated at the same time such as the beacon, JD and the speed valve for all functions except when wrapping slow at the start of the wrapping and when the loading arm is raised or lowered during the wrapping cycle.

FUNCTIONS ACTIVATED ON CONTROL PANEL.	DISPLAYSHOWS ACTIVATED TERMINALS (terminal 1234.5678.9ABC.DEF)
turn table fast forward	(terminal 1000.0000.0AB0.0000)
load arm down	(terminal 1200.0000.0AB0.0000)
load arm up	(terminal 1030.0000.0AB0.0000)
turn table slow forward	(terminal 0004.0000.0AB0.0000)
turn table slow reverse	(terminal 0000.5000.0AB0.0000)
cutter close	(terminal 1000.0600.0AB0.0000)
cutter open	(terminal 1000.0070.0AB0.0000)
tip up	(terminal 1000.0008.0AB0.0000)
tip down	(terminal 1000.0000.9AB0.0000)
JD/ general valve	(terminal 0000.0000.0X00.0000)
rotor lamp	(terminal 0000.0000.00X0.0000)
close grab	(terminal 1000.0000.0ABC.000)
open grab	(terminal 1000.0000.0AB0.D00)
wrist up	(terminal 1000.0000.0AB0.0E0)
wrist down	(terminal 1000.0000.0AB0.00F)

TERMINATIONS



The cutter open function requires that terminals 1,7,A AND B, present 12-volt on their respective outputs when the function is active. Note that the A terminal is the JD function with an inverted output, meaning that the terminal when inactive presents 12 volt on the terminal and is ground when active.

THE SENSORS AND THEIR PURPOSES

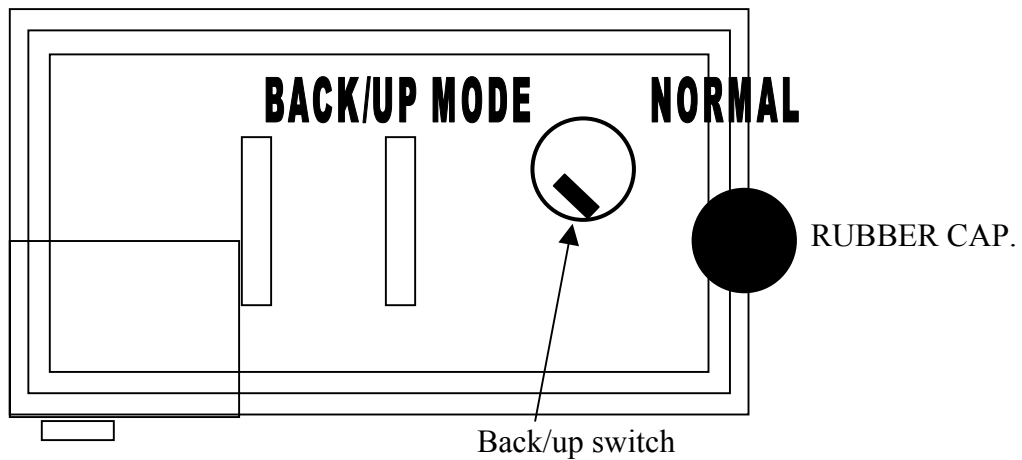
In the user level the sensor setup section is located, here a defect sensor may be disengaged which otherwise would make it impossible work continue.

<u><i>SENSOR NAME</i></u>	<u><i>SENSOR FUNCTION</i></u>
Load arm sensor	Determines when it is safe to load the bale onto the table and commence the wrapping cycle.
turn table sensor, (load and offload positioning)	Determines the correct position of the turntable for loading and offloading. It also counts the number of applied turntable revolutions and monitors the speed of the wrapping cycle.
Film cut sensor	Governs the correct angular position of the table for the cutting the film when offloading the bale.
Infrared sensor.	Wireless operation of the machine. Typical operating distance is 30-meter or more. The rotor-lamp time delay engages automatically when receiving signals from the transmitter and is only active when using this facility
Important. !	The sensors installed on the machine, should under all normal circumstances always be engaged to ensure the safe operation of the machine. The sensor engage / disengage facility is only to be used in case of a sensor defect, enabling the continuous operation.

BACK/UP MODE

In the event of break down of the controlling circuitry, it is possible to operate the system in backup mode, bypassing the actual controller, enabling the continuing work.

Computer rear view.



- 1:** Disconnect the power
- 2:** Remove the rubber cap
- 3:** Switch from right to left position

The display will now show

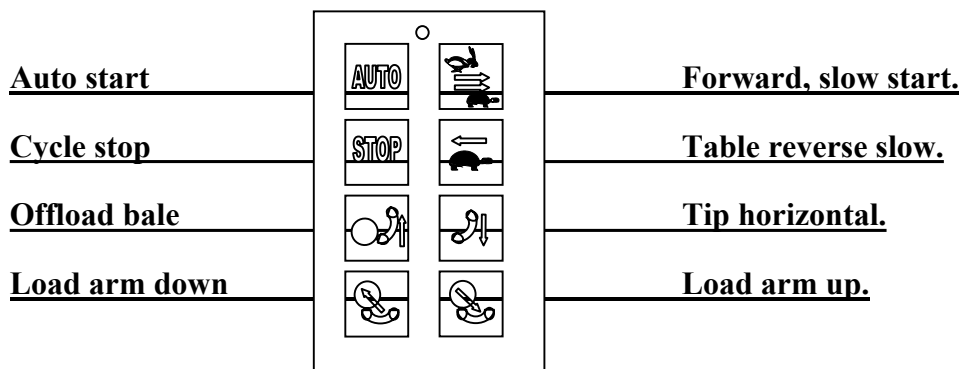
**"SWITCHED TO"
"MANUAL MODE"**

provided the processor is working

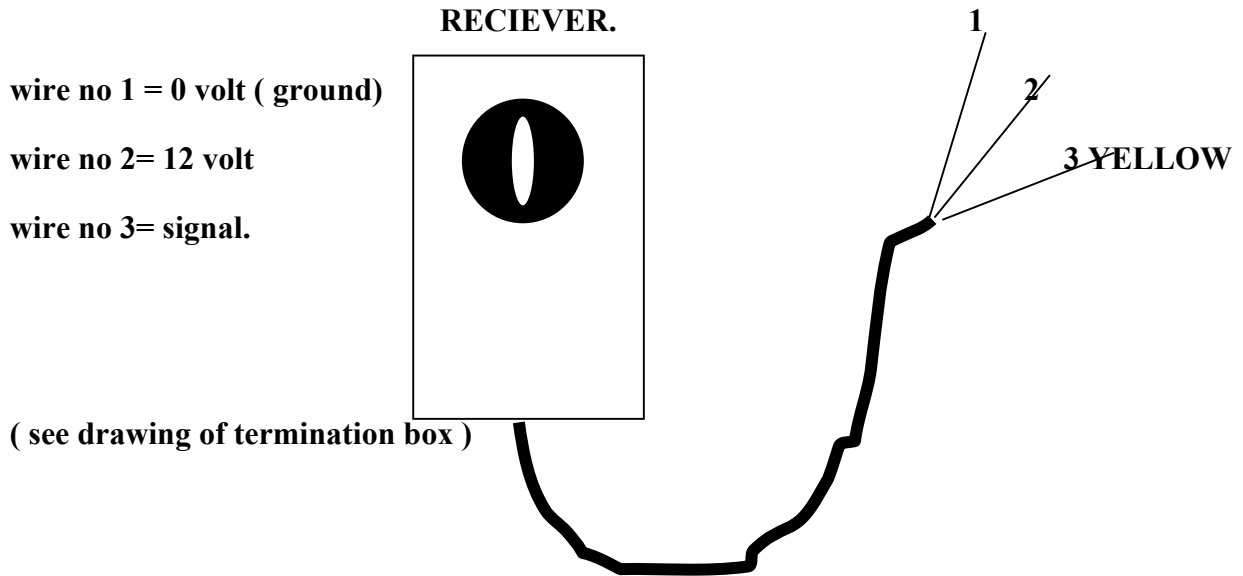
THE INFRA-RED SYSTEM

The operational radius of the system is typically 30 to 60 meters, depending on whether conditions and the state and type of battery used. Worst situations are early morning sunshine and at sundown, where 20 meters can be expected.

Further! Tractors may be equipped with UV filtered windscreens also reducing the radius of the system



Warning! The AUTO function on the handset, will start the machine with equal conditions to those, when using the AUTO command on the actual controller panel.



DISPLAY ERROR MESSAGES.

DISPLAY MESSAGE EXPLANATION.

<p style="text-align: center;">VOLTAGEDROP TO:xx.xV</p>	<p>The load provided by the hydraulic circuit has caused the supply voltage to drop to a level below the acceptable limit. (8 volt.)</p> <ol style="list-style-type: none"> 1. The tractor generator may be defect. 2. The tractor engine Rpm may be too low for the generator to charge the battery. 3. The supply cable termination onto the battery may be poor or dirty. 4. The batter may be defect. <p>Check terminations and go to the hardware test program to inspect the battery supply voltage in unloaded condition and loaded condition.</p>
<p>(any message plus)</p> <p style="text-align: center;">TIMEOUT!</p>	<p>Indicates that an associated hydraulic function has not been activated on the controller command. A timeout message means that a sensor has not received an expected signal within a defined period.</p> <ol style="list-style-type: none"> 1. The valve may be defect or hanging. 2. The relay output may be defect. 3. The Hydraulic connector may have fallen off. 4. The cable may be broken. 5. The hydraulic connector may be defect. 6. The sensor is defect, test sensor using test program.

	Test that the output supply is available on the associated terminals, Amp pins and hydraulic connector.
NO ROTATE PULSES	Check that the turntable is rotating, if it does check the sensor and it's wiring, if ok, use the same procedure as with timeout message.
LOAD ARM NOT DOWN	As above.
OTHER MESSAGES MAY APPEAR AND SHOULD BE TREATED AS THE ABOVE ILLUSTRATED	

OVERALL VIEW OF DISPLAYS, VARIABLES AND FACILITIES.

OPERATOR LEVEL	
ENGLISH.	ENGLISH
DISPLAY EXPLANATION.	DISPLAY
USER SECTION ONLY	
Programmable user cycle. Counter 3 are the bale counter in use at present.(580A)	WRAP CYCLE: 0-16 / BALECOUNTER 3: 345 X
Programmable user cycle. Counter 3 are the bale counter in use at present.(1080A)	WRAP CYCLE: 0-20 / BALECOUNTER 3: 345 X
The speed of the turntable is here monitored at any instant. Should the speed fall below or increase above the limits, audio and visual alarm will sound.	ACTUAL RPM: 22 (ALARM LIMIT: 20-35)
The system contains a total of 10 bale counters, which the operator is free to choose from. The individual counters are reset able.	BALE COUNTERS. Press SET to enter.
The operator setup level provides the operator with the possibility to make minor changes to the machine cycle.	SETUP PRESS SET TO ENTER.
HARDWARE TEST. Press SET to enter.	HARDWARE TEST. Press SET to enter.
OPERATOR LEVEL END.	OPERATOR LEVEL END.

SERVICE LEVEL	SERVICE LEVEL
Secret entry code for the service level. Should not be available to the user.	SERVICE CODE: 600
THE DISPLAY MUST BE SHOWING WRAPCYCLE IN ORDER TO GATN ENTRY.	PUSH SET, MENU +,EXIT SIMULTANEOUSLY.
ENTERING THE SETUP	WELCOME TO SETUP
LANGUAGE CHOISE, The system program contains instruction sets in 5 different languages.	LANGUAGE:ENGLISH
Setting up the machine model.	TYPE:1080A SQUARE BALE WRAPPER
All timers and variables specified by TANCO are stored in a FUNCTION TABEL. The variables are automatically transferred onto the standard table when the machine type is defined to the controller. The values are changeable in the standard table. Changing machine type will reenter the FUNCTION TABEL onto the standard table.	LOAD DEFAULT VALUES (RPM, TIME..)NOW: NO
The operator may choose a timer table suitable to the hydraulic flow delivered by the tractor or stationary pump. The turntable speed displayed during the operation determines which table should be used.	HYDRAULIC FLOW: HIGH (H)
Here the alarm limits minimum and maximum RPM of the turntable are specified. The audio and visual alarm will be activated if the speed falls below or is above these limits.(580A)	RPM ALARM LIMIT LOW: 16 HIGH:31
Here the alarm limits minimum and maximum RPM of the turntable are specified. The audio and visual alarm will be activated if the speed falls below or is above these limits.(1080A)	RPM ALARM LIMIT LOW: 16 HIGH:26
The system may be programmed to control various models of the Tanco machines.	WRAPPING COUNTER CLOCKWISE: YES
Working hours, is a timer counter, which may be used by the operator to monitor the amount of active, wrapping time performed this day? This counter may be zeroed. Machine total is a counter that registers the total amount of hours the machine has been working. The counter is not reset able. Both counters are active when hydraulic power is applied.	WORKING HRS.:XXXXX.X MACHINE TOT.:XXXXX.X

SERVICE LEVEL	SERVICE LEVEL
When the display shows this message, the audio alarm may be switched on/off and the display contrast may be varied. The display contrast is also always adjustable directly on the menu up and down buttons.	AUDIO & DISPLAY. Press SET to enter.
	AUDIO ALARM: ON
maximum contrast is 100 and minimum is 0. The system will always when switched on pre-adjust to 50% in order to avoid “ empty display.”	DISPLAY CONTRAST: 100
Switching the display backlight on/off	DISPLAY LIGHT: ON
In case of defect sensor it may be disengaged enabling continues operation.	TABLE HORIZONTAL SENSOR INSTALLED: NO
The film cutter will be activated upon signal from this sensor.	CUT NOW SENSOR INSTALLED: YES
For systems without load position sensor, 2 turntable magnets are required for position determination.	MAGNETS FOR ROTATE.TIP- POS.sensor:2
Defines if the machine is equipped with a load position sensor.	ROTATE LOAD POSITION SENSOR INSTALLED: NO
In order to achieve automatic loading of the bale a load arm sensor is required installed.	LOAD ARM UP/DOWN SENSOR INSTALLED : YES
THE BELOW PARAMETERS ARE DISPLAYED IN THE CYCLE SEQUENCE EXCATLY AS THE MACHINE PERFORMES THE OPERATIONS.	SEQUENCE-SETUP NEXT!
The amount of time the warning beacon is active before the hydraulic circuits becomes activated. The beacon timer is only active when the IR transmitter facility is used	WARNING BEACON TIME BEFORE START(H): 2.0
A YES statement will when a bale is located on the load arm with the load arm in the standby position upon a AUTO start command cause the bale to be loaded onto the table and start the wrap cycle	AUTO LOAD BALE WITH LOAD-ARM: NO
The length of time, which the grab hydraulics is active during the grab bale sequence.	CLOSE GRAP DURATION(L):3.0
The lengths of time that the grab hydraulics is active during the lift grab action.	RAISE GRAP SECTION DURATION (L) : 3.0

SERVICE LEVEL	SERVICE LEVEL
The amount of time the load arm hydraulics is to active in the upward movement during loading. The time is counted from the release of the load arm sensor.	RAISE LOADARM DURATION (H):5.0
The amount of time the grab hydraulics is to active when positioning the bale on the turntable.	RELEASE BALE DURATION(H) : 4.0
When the load arm is raised, it will in an automatic loading cycle pause for the specified period before returning to standby position (sensor level)	LOAD ARM UP TO DOWN DELAY (H) : 2.0
The time which the load arm hydraulics is active when lowering	LOWER LOAD ARM DURATION (H) : 0.0
The amount of time the grab hydraulics is to active when bringing the grab to pickup position.	LOWER GRAP SECTION DURATION (H) : 4.0
A NO statement will here cause the machine to commence the wrap cycle automatically when the bale is positioned on the turntable and the load arm has returned to the standby position.	WAIT FOR START SIGNAL AFTER LOAD: YES
The maximum amount of time allowed without missing rotate pulses, before the system will stop and announce an error.	TABLE PULSE INTERVAL MAX(s):15.0
If the system does not receive film sensor signals within this amount of seconds the system will stop the cycle and announce the error.	FILM PULSE INTERVAL MAX:5.0
This variable eliminates the possibility of false impulse counting during the turntable start at the beginning of a cycle.	TABLESTART, SKIP PULSE DURATION (H): 0.8
Slow speed during the wrap cycle beginning in seconds.	ROTATE SLOW DURATION WRAP START (s): 2.0
This value determines the quantity of turntable revolutions required on the bale before the film holders releases the film. The speed of the wrapping is in slow mode while the holders open and close.	REVOLUTIONS UNTIL FILM RELEASE (H): 2
The length of time, which the hydraulics is active during the film release operation or the length of time, which the spring arrangement in the electric cutter is tensioned.	RELEASE FILM (OPEN) DURATION (H) : 2.5
The amount of revolutions until the electric cutter is engaged. (Not applicable for hydraulic cutter facility.)	REV. UNTIL ENGAGE ELECTRIC CUTTER: 9

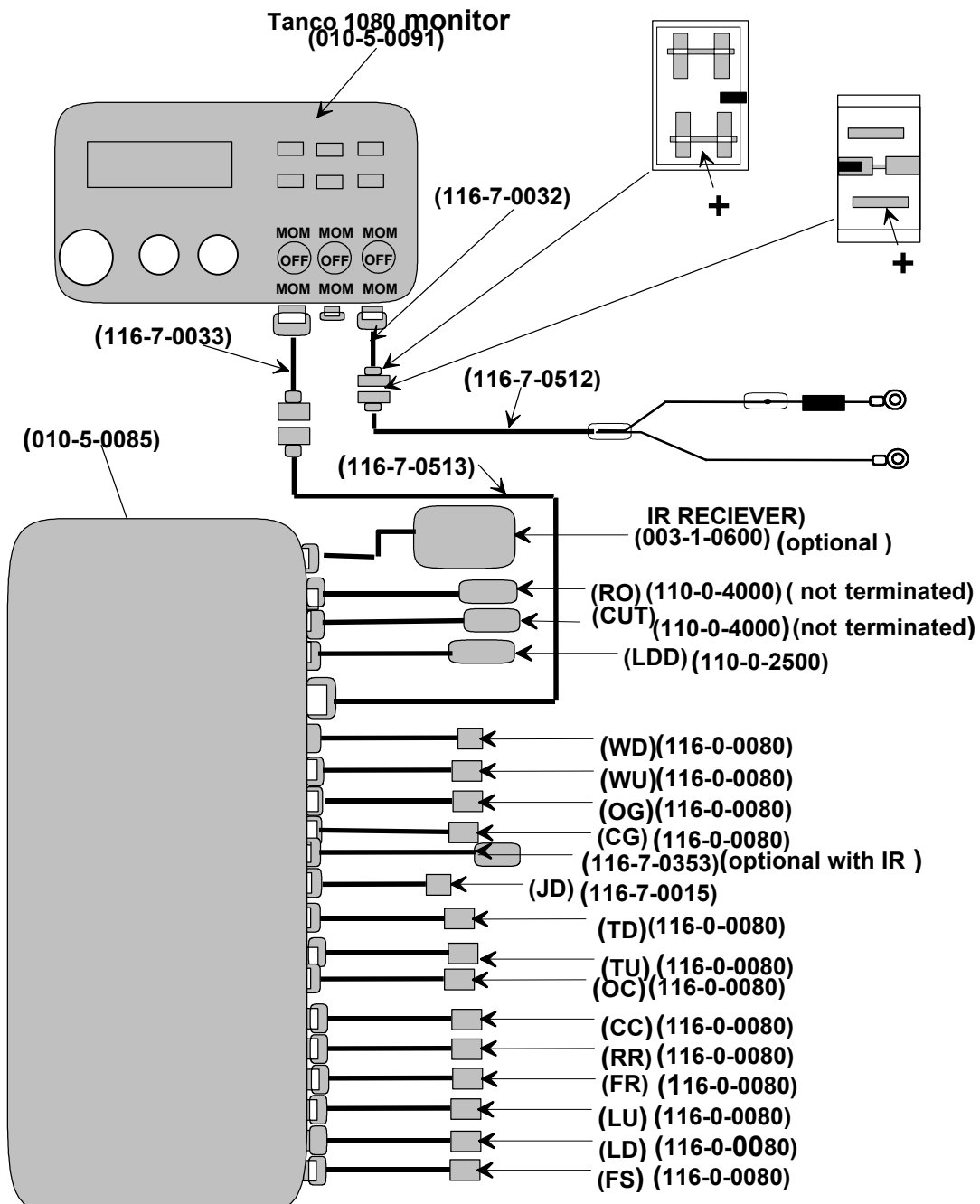
SERVICE LEVEL	SERVICE LEVEL
The length of time, which the electric cutter is to be active during the cutting cycle to approach the spring release device.	ENGAGE (CLOSE) ELECTRIC CUTTER (H): 5.5
Determines the distance the turntable is permitted to maintain full speed into the final revolution before switching to slow speed.	ROTATE FAST, START FINAL REV.(s): 0.7
When the turntable has switched to slow speed, the slow speed will run for this period.	ROTATE SLOW DURATION FINAL REV.(s): 0.0
If the value here is larger than 0 seconds, the turntable speed will go from slow speed to stop and stop for this amount of time before it restarts in slow speed and continues to the turntable offload position.	STOP TABLE DURATION FINAL REV. (s): 0.0
If the answer is NO, the system will automatically offload the bale when the cycle is complete. A YES means that the system awaits an operator START command for the offloading.	WAIT FOR STARTSIGNAL BEFORE TIP:YES
The amount of time the slow valve is to remain active after all functions has deactivated at cycle completion and turntable stop. This can help reduce hydraulic jamming due to backpressure.	DELAY DURATION AFTER TABLE STOP(H):0.0
A NO statement will allow the turntable to drift away from its sensor position when the final signal for offloading position has been received.	CHECK TIP-POSITION BEFORE AUTO-TIP:NO
If a horizontal table sensor is installed, this time determines the table position during the offload cycle for cutting the film.	IF NO CUT SENSOR: TIP UP UNTIL CUT (H): 2.0
The length of time the cutter hydraulics is to be active to cut the film during the offload cycle or the length of time, which the electrical cutter is to be active during the cutting action.	FILM CUT DURATION (H): 1.5
The length of time the table tips hydraulics is to be active during the offload sequence after the film is cut..	TIP UP AFTER CUT DURATION(H): 2.0
After the table is tipped to the outmost upright position, it pause for this amount of time before it returns to the horizontal position.	TIP UPTO TIP DOWN DELAY (H) : 0.3

SERVICE LEVEL	SERVICE LEVEL
The hydraulics will remain active for this ADDITIONAL time during the lowering cycle. The tip up to cutter sensor time is measured by the system and reused on the lowering cycle ensuring that the table is lowered as much as possible.	TIP DOWN DURATION (H):3.5
Typically for the trailed versions the turntable must automatically return to the loading position after the bale has been offloaded.	ROTATE 90 DEGREES TO FORWARD TO SENSOR : YES.
Only applicable on machines with load position sensor.	ROTATE 90 DEGREES TO FORWARD ON TIME : NO
	ROTATE 90 DEGREES TO REVERSE TO SENSOR : NO.
	ROTATE 90 DEGREES TO FORWARD ON TIME : NO
	REVERSE TIME:
This variable can be used in case of defect load position sensor where it then may be disengaged and the table may then be set to return to the position on time. ALSO used as a film tension release function where the turntable first turns past the loading position and then return to the sensor position.	ROTATE 90 DEGREES AFTER TIP DURATION (H) : 0.0
SERVICE LEVEL END	SERVICE LEVEL END
	<i>ERROR MESSAGES.</i>
Check physical position, related hydraulics circuit, sensors, wiring or relay outputs.	TABLE NOT HORIZONT.
Check physical position, related hydraulics circuit, sensors, wiring or relay outputs.	LOADARM NOT DOWN
Check physical position, related hydraulics circuit, sensors, wiring or relay outputs.	TABLE NOT IN LOAD POSITION
Check physical position, related hydraulics circuit, sensors, wiring or relay outputs.	TABLE NOT IN OFFLOAD POSITION
Check physical position, related hydraulics circuit, sensors, wiring or relay outputs.	NO FILM PULSES
Check physical position, related hydraulics circuit, sensors, wiring or relay outputs.	NO ROTATE PULSES
	PRM LIMITS
<i>MACHINE TOTAL RESET FUNCTION</i>	CODE NUMBER 070.
	TOTAL RESET CONTROLLER (BAL=0 ETC.) NO /YES

SERVICE LEVEL	SERVICE LEVEL
<p align="center">ENTERING THE REPEAT CYCLE</p> <p align="center">(DEMO PURPOSE ONLY). THE DISPLAY MUST BE SHOWING WRAP CYCLE IN ORDER TO ENTER THE MODE.</p>	<p align="center">CODE NUMBER 400. PUSH SET, MENU+ ,EXIT SIMULTANEOUSLY.</p>
<p>Service level facility only. A yes answer will cause the machine to repeat all functions without the instruction of the operator. The repeat mode can only be annulled by:</p> <p>1.Changing the statement to NO.</p> <p>2.Disconnect the power to the system</p>	<p align="center">** REPEAT WRAP CYCLE ** WHEN FINISHED: NO</p>

<p align="center">ENTERING THE BALECOUNTER PROGRAMMES</p>	
<p>Bales total. As below but a reset able function. Machine total displays the total quantity of bales made on the machine in total. This is not a reset able function.</p>	<p align="center">BALES TOTAL: XXXXX MACHINE TOTAL: XXXXX</p>
<p>Each counter display contains 3 counters.</p>	<p align="center">COUNTER: 1:XXXX 2:XXXX 3:XXXX</p>
<p>Each counter display contains 3 counters</p>	<p align="center">COUNTER: 4:XXXX 5:XXXX 6:XXXX</p>
<p>Each counter display contains 3 counters</p>	<p align="center">COUNTER: 7:XXXX 8:XXXX 9:XXXX</p>
<p align="center">USER ACCESABLE SETUP LEVEL</p>	<p align="center">USER ACCESABLE SETUP LEVEL</p>
<p align="center">Entering the user setup level.</p>	<p align="center">PRESS SET TO ENTER.</p>
	<p align="center">VELCOME TO SETUP! V</p>
<p>Defines the loading position. (3-point linkage or traileed machine.)</p>	<p align="center">ROTATE 90 DEGREES AFTER TIP.</p>
<p align="center">Entering the sensor setup level.</p>	<p align="center">SENSOR SETUP. PRESS SET TO ENTER.</p>
<p>The film cutter will be activated upon signal from this sensor.</p>	<p align="center">CUT NOW SENSOR INSTALLED: YES</p>
<p>Defines if there is a load position sensor installed.</p>	<p align="center">ROTATE LOAD-POISITION SENSOR INCLUDED:NO</p>

In order to achieve automatic loading of the bale a load arm sensor is required installed.	LOAD ARM UP/DOWN SENSOR INCLUDED : YES
Entering the hardware test program.	HARDWARE TEST PRESS SET TO ENTER.
Displays the instantaneous battery supply loaded and off load. The last drop is the lowest voltage supply measured during current surge when activating the hydraulics.	SUPPLY VOLTAGE:xx.xV LAST DROP: xx.xV
Entering the sensor / digital input test facility.	SENSOR (input) TEST. PRESS SET TO ENTER
20:0 MEANS TERMINAL OR PIN NUMBER 10 , 0 MEANS INACTIVE. WHEN ACTIVE THE STATUS CHANGES TO 20 : 1	LOAD ARM DOWN,No: 16:0 CUT /HORIZONTAL, NO.17:0
	ROTATE (TIP).NO.18:0 INFRA RED REC.NO.19:0
Enables the testing of each push button on the control panel.	TEST KEYS PRESSED: XXX.XXX
Enables the testing of each function switch on the control panel.	TEST SWITCHES ACTIVATED:XXXX.XXXX.XX
Enables the testing of each relay output function for the hydraulics on the controller	TEST RELAYS, 0=OF XXXXX.XXXXXX.XXXXXX (12)
Enables to test the Ir receiver and transmitter functions.	TEST. IR REMOTE CONTROL: 00 00 00 00



Wire and AMP number	Terminal number	Input & output function	RDS function and wire colors are stated where required	Termination changes to be made in the termination box if replacing a PRE 2000 square bale controller with a 2000 controller.
1	1	Table slow/fast	Table slow/fast	
2	2	Load arm down	Load arm down	
3	3	Load arm up	Load arm up	
4	4	Table forward	Table forward	
5	5	Table reverse	Table reverse	
6&16	6	Cutter close	Cutter close	
7&17	7	Cutter open	Cutter open	
8	8	Tip up	Tip up	
9	9	Tip down	Tip down	
10	10	JD valve	JD valve	
11	11	Beacon	Beacon	
12	12	Close grab	White/blue. Spare wire	Terminate in CG 1080 only
13	13	Open grab	Red/black. Spare wire	Terminate in OG 1080 only
14	14	Elbow up	Turquoise. Ground	Terminate in RG 1080 only
15	15	Elbow down	Yellow/red. Ground	Terminate in LG 1080 only
16&6	6	Cutter open	Yellow /green Ground	Terminate with black. All machine versions with electric cutter
17&7	7	Cutter close	Blue/black. Ground	Terminate with red. All machine versions with electric cutter

Wire and AMP number	Terminal number	Input & output function	RDS function and wire colors are stated where required	Termination changes to be made in the termination box if replacing a PRE 2000 square bale controller with a 2000 controller.
18		Ground	Ground	Remain
19	16	Infra-red sensor signal	Orange/blue Ground	Not used with system replacement
20	17	Tip/cut sensor	Tip/cut sensor	
21	18	Rotate tip position sensor	Rotate tip position sensor	
22	Ground	Ground	Safety loop, may be used as additional ground wire	
23	19	Load-arm sensor	Load-arm sensor	
24	20	12 volt for Infra-red receiver	Red /blue. Spare wire	
25	Ground	Spare ground terminate with 18 or 22	Ground	