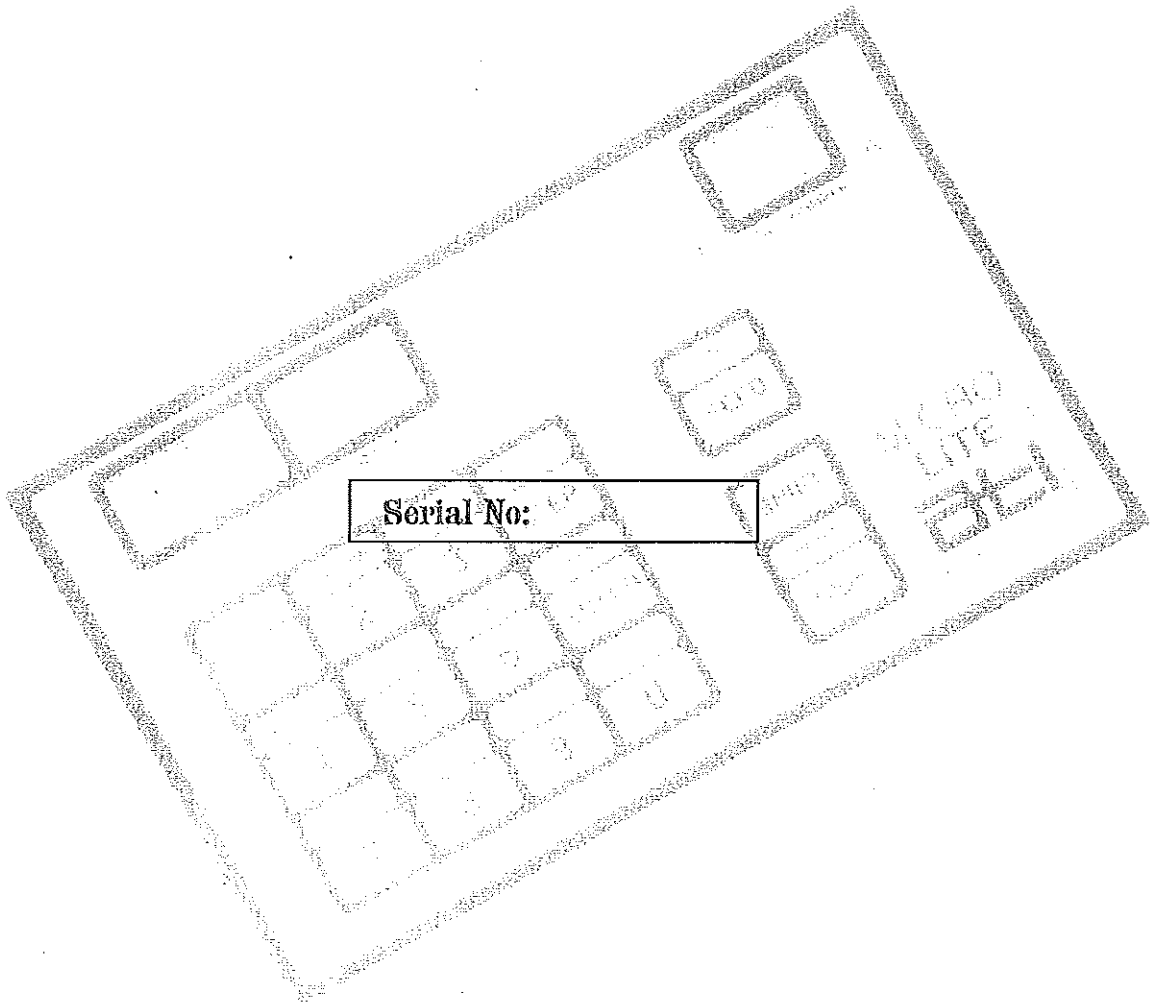


ATL MICRO LITE CONTROL
OPERATING
INSTRUCTIONS



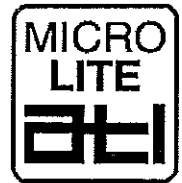
A.T.L. AGRICULTURAL TECHNOLOGY LTD
THE PARLOUR FEEDING SPECIALISTS

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CB8 9PA England

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Operating Instructions

Care of your Control



The Micro Lite control will give many years of trouble free use provided a few simple rules are followed.

1. Care should be taken in the Parlour with the use of water hoses and pressure washers. The Micro Lite and Power Supply Unit, whilst giving a high degree of protection, are not designed to have water sprayed over them.
2. The keypad on the Micro Lite consists of small tactile switches behind a plastic overlay. Only a small amount of pressure is required to operate the keys, pressing the keys hard will only fatigue the overlay unnecessarily and cause it to crack in the long run.
3. The ATL Micro Lite System must be connected to a mains supply with only a light load and a good earth connection. i.e. not a line which already has a motor or heavy water heater load. If there is any doubt about the type of earth on the farm see the note at the end of these instructions on electrical interference.

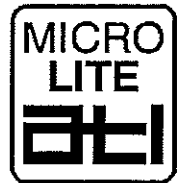
Important Note - if any rubber switch cover or if the keypad overlay becomes split, cut or damaged, it must be replaced immediately. Any ingress of water can seriously damage the switch and the components within the box. No warranty claim can be accepted under these conditions.

WARNING Plastic enclosures and switch covers can be severely damaged by Petrol and some petroleum products.

See Glossary for description of warning indicators.

Operating Instructions

Stand-by Feeding



In the unlikely event of any failure or damage to the main electronic circuit, a separate stand-by feeding system is incorporated. This consists of a rotary stall selection switch together with a biased Left/Right selector switch with a centre off position. Both these are mounted on the left hand side of the Auto Control unit. The main control PCB can be disconnected if it develops a fault which affects the operation of the outputs to the feeders.

STAND-BY FEEDING OPERATION

Select the stall to be fed by means of the rotary stall switch (settings 1 to 10) or select the batch feed option position 11, to feed stalls 1 to 5, or 12 to feed stalls 6 to 10. Hold the three way toggle switch to the Left or Right as required, either for the period necessary to dispense the ration or switch 'on' and 'off' for a pulsed output.

POWER SUPPLY STAND-BY

The ATL Power Supply has two back-up supplies.

- a. There is a direct connection to the output of the rectified low volt supply from the transformer which can be used if there is a failure in the electronic voltage regulation circuit. This is the "Non Regulated" connector situated in the power supply unit at the top of the terminal block. This connection provides an unregulated supply which will operate the system but without the accuracy of the regulated output. The feeder motors will generally run faster than normal and will consequently deliver more feed. Due allowance must therefore be made when feeding.
- b. Battery connections are available as an optional extra, for use in times of mains failure. For normal operation 16 volts will be required, (most vehicles provide this when the engine is running). Operation from a 12 volt battery will depend on the condition of the battery. The feeders will run slightly slower than normal, and due allowance must be made for the resulting smaller rations. With lower voltages the unit may only operate in the stand-by mode and relays may not always operate correctly.

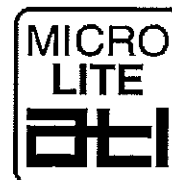
Feeder Overload Protection

OVERLOAD PROTECTION OF FEEDER MOTORS OR SOLENOIDS

The standard ATL Auto Control is fitted with two thermal overloads. These protect the supply and feeder motors or solenoids from damage by stalling or short circuits. One overload supplies the odd numbered stalls, the other, the even numbered stalls. The overloads are of the push button reset type and are mounted on the base of the box. Motors or solenoids which have a higher current rating than about 2.5 AMPS when running normally will require overloads with a higher rating. Please consult ATL.

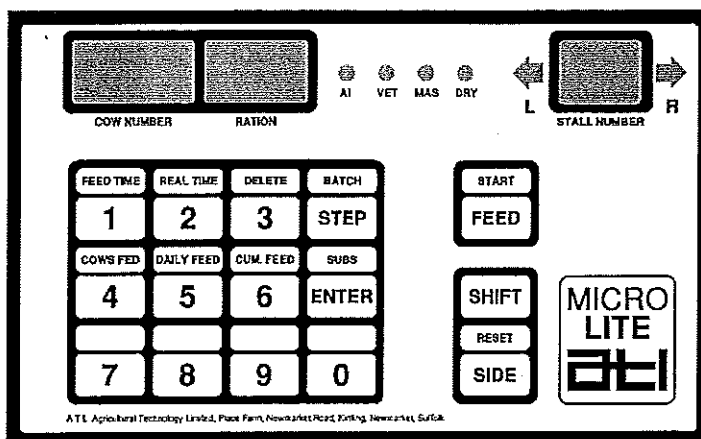
Operating Instructions

Introduction



Issue ML1:02

The Micro Lite is a Programmable Memory feeder control unit incorporating many useful and advanced features to help make the process of feeding and milking easier.



The Keyboard

The front panel of the Micro Lite incorporates fifteen square keys. From now on these keys will be referred to as the keyboard. Ten of these keys are numeric keys used for entering cow numbers and rations etc., and the rest are function keys that carry out a specific function when pressed.

The Display

The front panel of the Micro Lite also has a nine digit display. The display is separated into three windows. These are the 'Cow Number', 'Ration' and 'Stall Number' windows, as shown above. As you press the keys on the keyboard the information will be displayed in the appropriate window together with any of the 4 warning indicators (A.I., Vet, Mas or Dry) which may be shown for any particular cow. The side of the parlour to be fed is also shown, indicated by one of the illuminated arrows, either side of the stall number window.

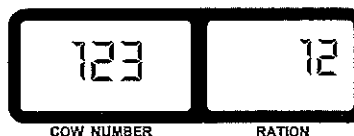
See Glossary for description of warning indicators.

Switching On

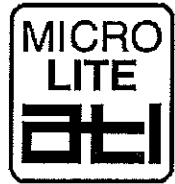
When the control is turned on the display will show the following:



The cow number window generally shows the current cow number to be fed. The ration window generally shows the current ration that the cow is to be fed e.g.



At certain times during the operation of the control, these windows may show other information when requested by the operator.



Calibration using the ATL Density Control

ATL feeders (and some other makes of electric feeders) can be calibrated accurately to feed the correct amount of cake when the controlled by the Micro Lite Density Control System.

If the feeders are being calibrated for the first time, i.e. when the system is first installed, you should read the relevant pages in the installation instructions first before reading on.

Assuming that all feeders have been calibrated to feed the same amount as each other, re-calibrating is a quick and simple operation. You should only need to re-calibrate the feeders when a new batch of cake is received, to allow for the differing densities of cake.

Each unit of feed can be varied to suit individual requirements but will generally be either 1/2 kg or 1 lb. **For the purpose of our example we will assume it to be 1/2 kg.**

1. Ensure the Micro Lite is in program mode. When in program mode, the cow number window will display PR6 in the cow number window when SIDE is pressed.
2. Feed 4 units of cake to any one of the feeders and weigh the feed dispensed.
3. If less than 2 kg (4 units of 1/2 kg) then increase the feed time as shown below. If more than 2 kg, decrease the feed time. Note, that the feed time is a proportional value, therefore if the feed weighed is 10% out you should adjust the feed time by 10%. e.g. if the weighing showed 2.2kg then the Feed Time should be increased by 10%
4. Set up the feed time :



Changing Modes is explained in more detail on the page headed 'Operating Modes'

Press the 'SIDE/RESET' key



Press 'SHIFT' and '1' (feed time)



Type in the desired feed time
(This can be any value between 60 and 255)



Press ENTER.

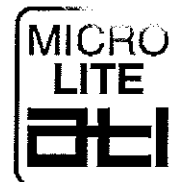


Repeat the process above, weighing the cake fed each time, until the feeder dispenses the correct amount of cake per ration.

Note : A.T.L. set the feed time on the Micro Lite to 120 when it leaves the factory. This is approximately half way between the two extremes.

Operating Instructions

Operating Modes



The Micro Lite has two operating modes : **Program Mode & Control Mode.**

In program mode ANY of the information that the Micro Lite holds can be modified or even deleted. In control mode the user can only feed the pre-programmed cow entries, or modify the warning indicators for these cows.

Changing between modes is done by means of entering a code. The code is entered via the subroutines using the following key presses :

Press **SHIFT** and **ENTER** (Subs)

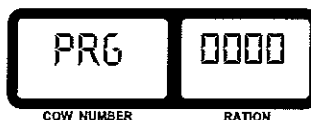


Subroutines are explained in more detail on the page headed 'Subroutines'

Type in **638**



Press **ENTER**



To change back to CONTROL MODE simply repeat the process above.

In program mode the cow number window will display **PRG** when **SIDE** is pressed.

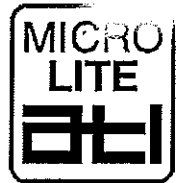
In control mode the cow number window will display **ATL** when **SIDE** is pressed.

NOTE :

If the control is left in program mode it will automatically revert back to control at 11:00 am.

Operating Instructions

Programming Cows & Rations



The Micro Lite can store up to 999 cows with their rations. To program in a new cow or to change the ration for an existing cow the control must be in PROGRAM mode.

To program in a new cow :

1. Type in the number of the cow
(Cow number 134 for example)



2. Press ENTER



3. Type in the ration to be fed each milking
(For example 4 units of cake)



4. Press ENTER



5. The Micro Lite will now prompt you to enter any warning indicators against that cow. Press keys 1, 2, 3 or 4 to toggle the AI, VET MAS or DRY indicators respectively. These are to the right hand side of the ration window. Press ENTER when the relevant indicators are illuminated, and the display will clear showing that the cow has been accepted.

If you do not wish to enter any warning indicator against that cow simply press ENTER and the display will clear showing that the cow has been accepted.

To change the ration for an existing cow :

Follow the above process. When you have typed in the cow number and pressed ENTER the ration window will show R and the current ration.



To change the ration simply type in the new ration and press ENTER. (For example a new ration of 12 units of cake). To leave the ration as it is just press ENTER.



As for programming a new cow, the Micro Lite will now prompt you to enter any warning indicators. Follow the above process to change the indicators or press ENTER to leave them as they are. The display will clear showing that the cow has been accepted.



To change only the warning indicators :

The warning indicators CAN be changed whilst the Micro Lite is in CONTROL mode. This allows the cowman to make a note of any warnings as they happen. For example when they see a cow bulling etc.

To change the warnings for a specific cow : Whilst in CONTROL mode, type in the cow number and press ENTER. The ration window will display IND, and keys 1,2,3 & 4 will toggle the corresponding warning indicator as above. Press ENTER to accept.

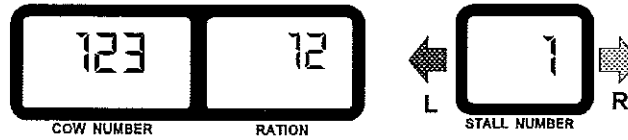
Changing Modes is explained in more detail on the page headed 'Operating Modes'

Herringbone Feeding

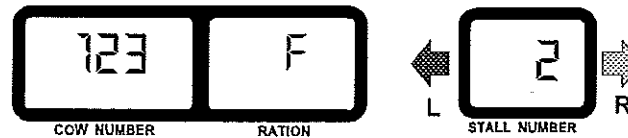
See separate pages for feeding in ABREAST parlours or for STORED feeding when all rations can be entered and the feed dispensed at a later time.

Feeding can be carried out in either CONTROL or PROGRAM MODE. The operation is similar for both instances:

1. Enter Cow Number, the Cow Number and the pre programmed ration will be displayed. Before feeding ensure that the side arrow indicator is showing the side of the parlour you wish to feed.



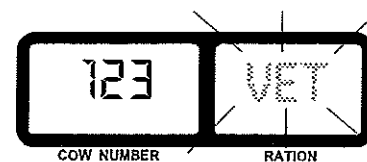
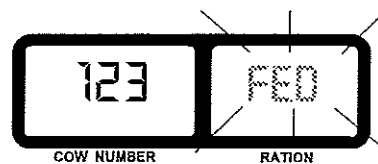
2. Press FEED. 'F' will show in the ration window and the stall number will increment by one automatically.



3. You can now enter the next cow number and press 'FEED' all as before.

GENERAL NOTES :

1. If you try to feed a cow twice during the same milking, on pressing the 'Feed' button, 'FED' will flash in the Ration window. You now have the option of entering a new cow number and pressing feed or just pressing 'Feed' again to feed that the cow number again. You can disable this facility via the sub routines.
2. If a cow has a warning indicator against it, as soon as the cow number is entered, the warning indicator lamp will show but will not stop the normal feeding operation. However, these warnings can be programmed so that as soon as you press the feed button, the particular warning will flash in the ration window. To feed the cow under these circumstances you will have to press the 'Feed' button again. This facility is disabled as standard to avoid confusion but can be enabled via the sub routines.

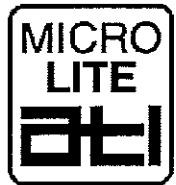


3. Although a cow can be programmed with a '0' ration, if you do not want to feed a particular cow - just press 'Step' and the stall number will increment by one.
4. Although the parlour side changes automatically, as soon as feeding is completed on one side of the parlour, you can manually override this by pressing the 'Side' button. The 'Side' button also acts as a 'Reset' button. If this is pressed while any other operations are being carried out i.e. feeding, they will immediately be cancelled.



Subroutines are explained in more detail on the page headed 'Subroutine Procedures'

For ABREAST Parlour and STORED Feeding modes - see separate page.

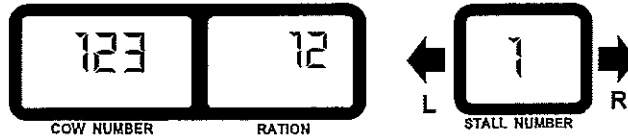


Abreast Parlour Feeding

See separate pages for feeding in HERRINGBONE parlours or for STORED feeding when all rations can be entered and the feed dispensed at a later time.

Feeding can be carried out in either CONTROL or PROGRAM MODE. The operation is similar for both instances:

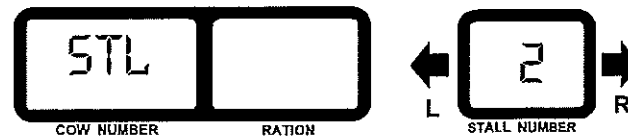
1. Enter Cow Number, the Cow Number and the pre programmed ration will be displayed. The side arrow indicator should not be illuminated.



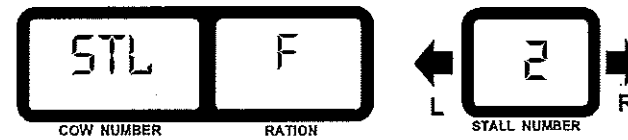
2. Press FEED. 'Stl' will be displayed in the cow number window and the stall number window will clear.



3. Enter the required stall number. This will appear in the stall number window.



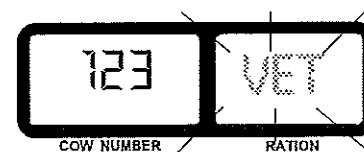
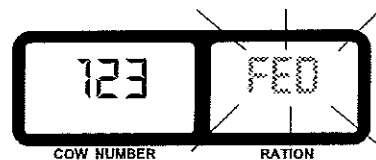
4. Press 'FEED'. ('F' will be displayed in the ration window to indicate that the cow is no longer being fed.)



5. You can now enter the next cow number and press 'FEED' all as before.

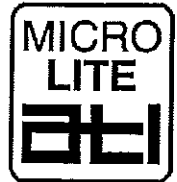
GENERAL NOTES :

1. If you try to feed a cow twice during the same milking, on pressing the 'Feed' button, 'FED' will flash in the Ration window. You now have the option of entering a new cow number and pressing feed or just pressing 'Feed' again to feed that the cow number again. You can disable this facility via the sub routines.
2. If a cow has a warning indicator against it, as soon as the cow number is entered, the warning indicator lamp will show but will not stop the normal feeding operation. However, these warnings can be programmed so that as soon as you press the feed button, the particular warning will flash in the ration window. To feed the cow under these circumstances you will have to press the 'Feed' button again. This facility is disabled as standard to avoid confusion but can be enabled via the sub routines.



3. Although a cow can be programmed with a '0' ration, if you do not want to feed a particular cow - just press 'Step' and the stall number will increment by one.

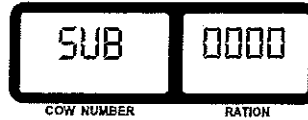
For HERRINGBONE Parlour and STORED Feeding modes - see separate page.



Subroutines are a series of programs within the Micro Lite that can be activated at any given time to perform a specific task. Generally these programs are not used very often and most of them are only ever used when the control is first installed. However, it is highly recommended that you become familiar with the way the subroutines work, as you never know when you may need them.

The process for activating subroutines is as follows :

Press 'SHIFT' and 'ENTER'



The Subroutines are listed in appendix 1

Type in the required subroutine number
(for example 25)



Press 'ENTER'



The last display will differ depending on the subroutine number that you entered.

In general terms the cow number window will display the name of the subroutine that you have entered, and the ration window will display the relevant information for that subroutine.

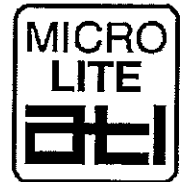
In the example above, subroutine number 25 was run. This display's the amount of feed fed using the batch feeding facility. As you can see from the last display, the cow number window displays BAT to show that the batch feed fed subroutine was run, and the ration window shows that 1264 units of feed have been fed using the batch feeding facility.

It is important to note that only certain subroutines can be run whilst in control mode, whereas all of the subroutines can be run in program mode. A listing of all the subroutines is in appendix one. This list also shows which subroutines can be accessed from control or program mode.

Where ever you see 'Run subroutine XXX' in this book follow the above process, replacing the subroutine number the the number specified in XXX.

Operating Instructions

Feeder Settings



The Micro Control must be set up to operate each specific type of feed dispenser. These can vary in many ways - vacuum or electric, fast or slow dispensing rates etc. To set the type of feeder - use sub routine 984. The Cow number window will display 'tFd' with the feeder type shown in the ration window.



Subroutines are explained in more detail on the page headed 'Subroutine procedures'

A list of available subroutines is in appendix 1.

To select the type of feeder, press any key (except Enter) to step through the feeder list. Press Enter to select the the feeder type. - See the following chart for the list of available feeders. If you are in any doubt - ask ATL.

TABLE OF FEED TIMES AND CODES

CODE	Pulse/ Time	FEED TIME			FEEDER
		60	120	240	
AtL	Time	0.8	1.8	3.7	ATL
rAt	1	0.4	0.8	1.8	Ration Master
HOS	Time	0.4	0.8	1.8	Hosier
AL2	2	0.8	1.8	3.7	Alfa 2 Pulse
SIA	Time	0.8	1.8	3.7	Simplex Alumin.
SP1	Time	5.5	11.0	22.2	Westfalia EZ
SP2	4	0.8	1.8	3.7	Westfalia M
SP3	1	0.8	1.8	3.7	Westfalia EP
Aug	Time	5.5	11.0	22.0	Auger Master
Orb	1	0.4	0.8	1.8	Orby
Sur	Time	5.5	11.0	22.0	Surge
gAS	Time	2.5	5.0	10.0	Gascoigne
SI2	Time	2.5	5.0	10.0	Simplex Galv
Eb	Time	5.5	11.0	22.0	EB
SSt	4	0.8	1.8	3.7	Somerset
AL4	4	0.8	1.8	3.7	Alfa 4 pulse

NOTE: The feed time setting is usually set to 120. (See calibration of electric feeders). The Feed Time is used for the Density calibration of electric timed feeders and to adjust the 'ON' period of the pulse for vacuum feeders. The 'OFF' period is always equal in time to the 'ON' period. Therefore, the total period for pulsed systems is double that specified above.

For other feeder types - please consult ATL



SUB ROUTINES

The subroutines can only be accessed in program mode. They have special functions that are not commonly used in the set-up of the micro, and for communicating with a PC.

If a subroutine number is entered, that does not exist - 'Err' will flash in the ration window. Press Side/Reset and try again.

1. DISPLAY MICRO VERSION NUMBER.
2. SET THE TIME (HOURS & MINUTES - 24 HOUR CLOCK)
5. GET DATA FROM P.C. (SERIAL)
6. SEND DATA TO P.C. (SERIAL)
10. LIST COWS NOT FED DURING MILKING
100. * ADD 'X' UNITS TO ALL DAILY FEEDRATIONS
101. * DECREASE 'X' UNITS FROM ALL DAILY FEED RATIONS.
281. * CLEAR ALL THE MEMORY.
581. CLEAR DOUBLE FEED FLAGS FOR THE SAME MILKING
777. DISPLAY SERIAL NUMBER.
980. SET UP HERRINGBONE/ABREAST MODE
981. SET UP STORED FEEDING MODE
982. * SET UP NUMBER OF STALLS.
983. * SET UP NUMBER OF FEEDERS TO RUN
984. * SET UP FEEDER TYPE.
987. * SET UP NUMBER OF FEEDERS TO START
992. * ENABLE/DISABLE PROTECTION OF DOUBLE FEED FACILITY
993. * ENABLE/DISABLE FEED PROTECTION OF DRY COWS
997. * ENABLE/DISABLE AI INDICATOR
998. * ENABLE/DISABLE MAS INDICATOR
999. * ENABLE/DISABLE VET INDICATOR

* Can only be accessed in Program Mode

DETAILED DESCRIPTION OF SUBROUTINES

1. DISPLAY MICRO VERSION NUMBER - The cow number window will display 'EPr' and the ration window will show the version number of the software inside the micro. Press reset to resume using the micro.
2. SET THE TIME - Enter MINUTES which will show in the cow number window, press Enter. Enter HOURS in the cow number window, press enter. To view the time press 'Shift' & 'Real Time'.
5. GET DATA FROM A P.C. - The cow number window will display 'S-I' The micro is now ready to receive data from a P.C. through the serial RS232 port. At the end of the transfer the micro will display 'End' and then reset.

Note : The memory of the micro is not cleared before receiving data. This is so new cows can be added to the current list in the micro. If you wish to load in a completely new batch of cows, you should clear the memory first using subroutine 281. A program is available from A.T.L. for the IBM PC for transferring and editing this information.

6. SEND DATA TO A P.C. - The cow number window will display 'S-O' Before running this routine ensure that the PC is ready to receive the information. As each cow is transmitted its number is displayed in the ration window. At the end of the transfer 'End' is displayed and the micro will reset. A program is available from A.T.L. for the IBM PC for transferring and editing this information.
10. List cows not fed during milking. 'CnF' is displayed in the Cow Number window. Press 'Enter' to step through the cows not fed until 'End' is displayed. Cows flagged with the 'DRY' indicator will NOT be included.



100. ADD 'X' UNITS TO ALL DAILY FEED RATIONS. - The cow number window will display 'Add'. The lamp next to the ration window will light up, type in the amount that is to be added to each ration and press enter. The micro will not accept a value greater than 29. The led will go out. The ration window will display the new rations as they are updated and then reset.
- Note : Rations will never exceed 29. If a ration for a cow is 20, and you try to add 11, it will become 29 and NOT 31 !
101. DEC 'X' UNITS FROM ALL DAILY FEED RATIONS. - The cow number window will display 'dEC' follow the instructions as for adding a ration, except the value you type in will be deducted from all the rations.
- Note : Rations will never go below 1. If a cow has a ration of 3, and you deduct 7, it will become 1 and NOT -4 !
281. CLEAR MEMORY. - The cow number window will display 'CLr' while the micro is clearing the memory, then it will reset. As well as clearing all the cows the following all information is cleared including:
- The daily feed total, cumulative feed total, number of cows fed and the batch feed fed totals are all set to zero.
581. Clears the double feed flags for the same milking. This is not normally used as this function is automatic between different milkings.
- 777.DISPLAY SERIAL NUMBER. 'Sno' is displayed in the cow number window. This number should be quoted when talking to A.T.L. This number will also be shown on the configuration sheet attached to the inside of the front cover of the Installation & Operating Instructions
980. HERRINGBONE/ABREAST MODE. This routine sets up the operating procedure for Herringbone or Abreast parlours. Normally this will be factory set. 'Abr' 'yES' = Abreast mode, 'Abr' 'nO' = Herringbone mode.
981. STORED FEEDING MODE. 'Std' 'nO' = normal feeding. The feeder will start after the FEED button has been pressed. 'Std' 'yES' allows all cows to be entered on one side of the parlour before the feeders start dispensing. Enter cow number and press feed button as normal for all cows ('Std' will show in ration window). Press SHIFT and FEED to activate the feeders. 'F' is displayed in the Ration window and the milk yield window clears.
982. SET UP THE NUMBER OF STALLS. - The cow number window will display 'StL' and the ration window will show the current number of stalls. See Entering a value above. (The micro will not accept a value greater than 16). The micro will reset. Note : Whenever the number of stalls is set, the number of feeders to run is automatically set to 4 and so is the number of feeders to start.
983. SET UP THE NUMBER OF FEEDERS TO RUN - The cow number window will display 'Fdr' and the ration window will show the current number of feeders to run at the same time.. See : Entering a value. (The micro will not accept a value greater than the number of stalls currently set). **NOTE: For Timed Feeders the normal number to run is 4. If more than 4 are required, a larger Power Supply may be necessary-Consult ATL.**
984. SET UP THE TYPE OF FEEDER - The cow number window will display 'tFd' and the ration window will display the current setting. Press any number key to step through the Feeder list. Press Enter to select the Feeder type required - see separate chart
987. Set up number of feeders to start. Cow number window displays 'FdS' - as for 983 except the value is used to set how many feeders can start up at once. It is automatically set to the same number of feeders to run when the number of feeders to run is set up.
992. Enable / Disable protection of Double Feed facility. 'PdF' is displayed in the Cow Number window. yES or nO is displayed in the ration window. Press any number key to toggle - Yes or No. Press Enter to accept. If YES, the control will warn you if you try to feed a cow twice.
- 993 Enable / Disable protection of Dry Cow Feed facility. 'CdY' is displayed in the Cow Number Window. yES or nO is displayed in the ration Window. Press any number key to toggle - Yes or No. Press Enter to accept. If YES, the control will warn you if you try to feed Dry Cow.
997. Enable / Disable protection of AI Indicator 'PAI' is displayed in the Cow Number Window. yES or nO is displayed in the ration window. Press any number key to toggle -



Yes or No. Press Enter to accept. If YES, the control will warn you if you try to feed that cow.

998. Enable / Disable protection of MAS Indicator 'PAS' is displayed in the Cow Number Window. yES or nO is displayed in the ration Window. Press any number key to toggle - Yes or No. Press Enter to accept. If YES, the control will warn you if you try to feed that cow.

999. Enable / Disable protection of VET Indicator 'PEt' is displayed in the Cow Number Window. yES or nO is displayed in the ration Window. Press any number key to toggle - Yes or No. Press Enter to accept. If YES, the control will warn you if you try to feed that cow.



C.S.A.

Cross Sectional Area. A term used to describe the size of a wire.

L.E.D.

Light Emitting Diode. An electrical device used as a visible indicator.

Warnings

Warning indicators are the four L.E.D.s to the right of the ration window. These are used to warn the user of any problems with a specific cow. The warning indicators are labelled AI, VET, MAS and DRY.

Operating Instructions

House Keeping Operations



Various operations are carried out when the Micro Lite clock reaches 3:00am, 11:00am and 7:00pm. These include clearing the Double Feed Flags each time, clearing the the number of cows fed each time and calculating the daily feed total at 11:00am only. These times were chosen to accommodate both twice-a-day and three-times-a-day milkings.

NOTE: The Micro Lite **MUST** be left switched on between milkings for the house keeping operations to occur. Only the feeder supply switch on the left hand side of the control should be switched off between milkings.

If problems occur with the Double Feed flags not clearing, check that the clock is set to the correct time. This should be in the 24 hour time format.

Double Feed flags can be cleared manually before a milking by running sub routine 581 and can be disabled completely by setting sub routine 992 to NO.