DELUXE COMP-U-DRY
Generation 2

By Shivvers

OPERATING INSTRUCTIONS

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Glossary of terms and abbreviations

There are some terms used in this manual which may be new and an explanation of their meaning is given.

BLINKING CURSOR A mark ( ) displayed on the Comp-U-Dry display which indicates that the Comp-U-Dry is waiting for an operator entry.

DEFAULT or DEFAULT VALUE A constant stored in the Comp-U-Dry memory which is used if the operator does not make an entry.

MENU A listing of the programs or subroutines available which may be selected by the operator.

RAM Random Access Memory. The designated area of memory used for temporary storage of data. Data stored in this area is retained when Comp-U-Dry power is turned off.

RET The abbreviation for the "return" key on the keyboard. This key is used by the operator to indicate the completion of an entry.

REDO A term used by the Comp-U-Dry to indicate that the operator has made a wrong entry and the data should be re-entered. If Comp-U-Dry detects an error during operation it may print "REDO" and re-try.

RESET The procedure for interrupting the Comp-U-Dry and starting it at the beginning of the program. A reset key is provided for this operation. All data stored in RAM memory is retained on a reset.

ROM Read Only Memory. The designated area of memory used for permanent storage of the programs. Also called non-volatile memory. This area of memory is not affected by turning Comp-U-Dry power off.

RESUME A procedure for restarting the drying operation after a reset.

UTILITIES A set of programs or subroutines available to the operator to allow operation of the Comp-U-Dry control functions.
INTRODUCTION TO COMP-U-DRY

The Comp-U-Dry grain dryer control functions as a parallel system to the standard dryer control. Either system will control the dryer depending on how the system controls are set.

The Comp-U-Dry controls the drying process by checking the moisture content of samples of the drying grain and turning the discharge augers on when grain is at or below the desired moisture content. It also adjusts the plenum temperature to maintain the maximum drying rate while minimizing over drying of the grain.

In addition to the grain drying program, there are a number of utility programs to allow using the Comp-U-Dry as an aid in checkout and trouble shooting the dryer system.

All programs are permanently stored in ROM (Read Only Memory) memory in the Comp-U-Dry. The drying constants, such as desired moisture setting, plenum temperature, and other data are stored in RAM (Random Access Memory) memory.

Drying constants are initialized to preset default values each time the Comp-U-Dry is turned on. These values may be altered or changed by the operator and will then remain in RAM memory, each value being stored in two separate locations. During startup and operation, the Comp-U-Dry checks that the two values are the same. If not the Comp-U-Dry stops the drying operation, sounds the buzzer, and prints out a WARNING diagnostic error message. In this case, the operator should press [RESET] and re-enter the proper drying constants.

All drying constants are entered by the operator using the keyboard. The Comp-U-Dry will request information by printing and displaying the item requested followed by a blinking cursor [ ]. The operator then enters the data through the keyboard to complete the entry. If the entry is not in the required format or out of range, the Comp-U-Dry responds with REDO allowing the operator to re-enter the data. An entry mistake may be erased using the delete key. To use the values already in RAM memory, no entry is made and the return key [ ] is pushed. Multiple entries such as Month, Day, and Year are separated by a decimal point [ ].

The drying program also runs a clock to keep track of the time and date. The time and date are entered by the operator during the start-up procedure.
GENERAL COMMENTS ON USE OF COMP-U-DRY

Other than the warnings listed in the use of some of the Utilities, the operator will not damage the Comp-U-Dry by improperly entering data thru the keyboard.

If data is entered in the wrong format, the Comp-U-Dry will normally print "REDO" and wait for data to be re-entered. If the Comp-U-Dry continues to print "REDO", the operator should try a different format or check the operating manual for the proper format.

Most data entries are completed with a RET (return). However, in some cases, such as program selection, the Comp-U-dry will make the return automatically when the entry is complete. If you have completed your entry and the blinking cursor (□) is still on the display, push the RET.

During an entry, if a mistake is made, it may be removed one character at a time by using the DEL (delete key).

The operator may interrupt the Comp-U-Dry at any time by turning it OFF or by pushing the RESET.

If the Comp-U-Dry is turned off, it shuts down all systems immediately except the fan and returns control of the dryer to the circutrol or standard dryer control. In this case the operator should set the grain and plenum thermostats to the proper settings for the grain moisture desired.

When the Comp-U-Dry is turned off, all operator entries such as meter calibration offset, number of samples to average, dry to set point, plenum temperature settings, date and time are retained in RAM memory. The date and time are not updated while power is off.

If the Comp-U-Dry program is interrupted with a RESET, it shuts down all systems immediately except for the fan and exits to the top of the MAIN MENU. In this case, all operator entries are retained in memory and the date and time are continuously updated. The drying operation may be restarted by use of the F1 RESUME key. The operator may confirm or change the meter calibration and all operator entries are then printed out during the restart process. If the operator wishes to change the other drying constants the drying process should be re-entered using the 4 DRY GRAIN function.

The visibility of the display varies with the angle at which it is viewed and the ambient temperature. It may be changed by pressing the VIEW up or VIEW down keys. There are 16 viewing steps. Holding the key down for approximately 1 second will change the display by 1 step. When the display reaches 16, it will roll over to step 1. The display should be adjusted for best visibility by the viewer.

A backlight is provided for viewing the display at night. Holding the LHT key down approximately one second will turn the display backlight on. Holding for another second will turn it off. The backlight will last longer if turned off when not needed.
TO START DRYING

Because wet grain can jam the augers, IT IS WELL TO PREDRY THE GRAIN BEFORE STARTING AUGER SYSTEMS as follows:

Start the fan and heater and adjust to plenum temperature normally used. Allow the grain to dry at least one hour for every 5 points of moisture to be removed. If the grain is 3 points wet, let dry for one hour; if 7 points wet, let dry for two hours. DO NOT try to run the system until the grain is at or below 22% moisture.

TO START THE COMP-U-DRY

Because the Comp-U-Dry functions as a parallel drying system to the standard dryer control, it is necessary to set the standard dryer controls so they will not interfere with the Comp-U-Dry. This is done as follows:

1) SET PLENUM THERMOSTAT TO LOWEST TEMPERATURE.

   This allows the Comp-U-Dry to control the heat under the floor.

2) SET THE GRAIN THERMOSTAT TO THE HIGHEST (DRIEST) POSITION.

   This allows the Comp-U-Dry to control the transfer of grain.

3) SET MACHINE SWITCH TO "AUTO" POSITION.

   This switch must be in automatic to have power at the Comp-U-Dry.

4) SET TRANSFER AUGER CONTINUOUS FLOW SWITCH TO "AUTO" POSITION.

   Unless grain is to be recirculated in the bin.

5) SET LOW GRAIN SHUTOFF OR GRAIN LEVEL INDICATOR SWITCH TO "ON".

   Unless sweep has previously traversed the bin twice and switch has been set to AUTO.

6) HEATER CONTROL:

   Set fuel pressure high enough to maintain desired plenum temperature.

   If equipped with a modulating valve set it to the highest maximum desired plenum temperature.

   These settings will allow the Comp-U-Dry to "override" the dryer control box and control the machine and transfer of grain to the storage bin.
INITIAL START-UP OF COMP-U-DRY

After completing the previous steps, push the "ON" switch of the Comp-U-Dry panel. The Comp-U-Dry should start and respond by printing the following:

**TAPE**

SHIVVERS G2 COMPUDDY

MO.DAY.YR.=00/00/00

**DISPLAY**

This is the last date the unit was run. On first startup the date will appear as 00/00/00. When the blinking cursor appears on the display, if the date is correct push [RET]. If not correct enter the current date. Two digits are always required for the day and year such as 9.09.87 or 9.17.87. Use periods to separate each number. To enter September 9, 1987

**COMMENTS**

PUSH

9 0 9 3 7 [RET]

This allows entry of a starting time. A decimal point must be used between hours and minutes followed by an "A" for AM or "B" for PM, such as 8.15A or 12.22B. * Default value is 00:00A. In this case Comp-U-Dry records the elapsed time.

To enter 1:35 PM

PUSH

1 3 5 B [RET]

The only time the Comp-U-Dry asks for the time and date is on initial startup. While power is on, it will continuously update the clock. To change the time and date, shut power off, wait approximately one minute for the power supply to drain down and then turn the unit back on.
**Comp-U-Dry continues with:**

<table>
<thead>
<tr>
<th>TAPE</th>
<th>DISPLAY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THIS MOISTURE METER IS ADJUSTABLE. YOU CAN CALIBRATE IT IF NECESSARY TO BE CONSISTENT WITH A CERTIFIED MOISTURE METER OR OTHER METER WHICH YOU CONSIDER ACCURATE. PERIODICALLY CHECK METER ACCURACY AND YOUR DRYERS OUTPUT GRAIN MOISTURE THROUGHOUT YOUR DRYING SEASON. SEE OWNERS MANUAL FOR INSTRUCTIONS.</strong></td>
<td></td>
<td>This paragraph is meant to be a reminder that the Comp-U-Dry drying system does not remove the need to properly care for your grain in the storage bins. The Comp-U-Dry system dries the grain accurately to your preset moisture, using no more heat (fuel) than is absolutely required, and transfers the grain at the proper time. This does not insure trouble-free storage unless proper care is taken in the storage bin.</td>
</tr>
<tr>
<td><strong>VER G2.0 COPYRIGHT 1988</strong></td>
<td></td>
<td>This is the program identification in your unit</td>
</tr>
<tr>
<td><strong>SELECT ONE</strong>&lt;br&gt; F1 RESUME&lt;br&gt; 1 MENU&lt;br&gt; 4 DRY GRAIN</td>
<td></td>
<td>This is the main menu.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The blinking cursor indicates the Comp-U-Dry is now waiting for instructions. The operator may select any item by pushing the number of the desired item. In some cases, a carriage return may be required to complete the entry.</td>
</tr>
</tbody>
</table>

**NOTE:** The display shows each line as it is printed with the last line printed remaining on the display.
To start Comp-U-Dry grain drying program

SELECT 4 DRY GRAIN

TAPe

SELECT ONE
F1 RESUME
1 MENU
4 DRY GRAIN

DISPLAY

COMMENTS
To select drying program
PUSH 4

Comp-U-Dry responds with

SELECTION 4
LOT #=0000

NOTE: To correct errors in data entry, push RESET and re-enter the DRY GRAIN program.

Comp-U-Dry responds with

ENTERED 17A
DRY TO 14.0

NOTE: To use default value DO NOT make any entry, just PUSH RET

This allows you to identify the grain being dried for your records. Any combination of up to four letters or numbers may be entered. The Comp-U-Dry will automatically terminate after four entries. If less than four entries are made push RET after last entry. Default value is last entry or 0000.

To enter LOT # = 17A
PUSH
1 7 A RET

This allows you to select the grain transfer moisture. A decimal point must be used such as 14.0 or 14.6 and push RET to complete entry. Range is from 8.0 to 29.9. Default value is last entry or 14.0.

To enter DRY TO = 16.9
PUSH
1 6 . 9 RET
Comp-U-Dry responds with

ENTERED 18.9
METER CAL=+0.0

This allows confirming or changing the METER calibration. To confirm
PUSH RET

To change
PUSH

If you need to subtract from the Comp-U-Dry reading
PUSH 2

If you need to add to the Comp-U-Dry reading
PUSH 1

Readings up to + or - 5.9 may be added to the Comp-U-Dry readings. This entry requires a
digit, a decimal point and a digit, such as 0.9 or 1.0, or 1.6.
To add 1.6 to the Comp-U-Dry reading
PUSH 1 6 RET

Comp-U-Dry responds with

SELECTION 2
-AMOUNT=

Comp-U-Dry responds with

SELECTION 1
+AMOUNT=

NOTE: Meter offset readings are always from the base reading. They are not cumulative. For example: If the meter is calibrated to be +2.0 from the base reading and The Comp-U-Dry still reads 1 point lower than desired, instead of entering an additional +1.0 you should enter +3.0.
In most dryers the rate of grain drying will vary for different locations around the bin. The Comp-U-Dry averages the last 4 readings to smooth out these variations and control more accurately the average grain moisture content. If there is a large difference in drying rate, it may be desirable to take averages over a larger portion of the bin. The number of readings that the Comp-U-Dry averages may be changed as follows.

**Tape**

ENTERED +1.2
RDGD TO AVE=4

**Display**

4 RDGD TO AVE =

**Comments**

The number of readings to be included in the average can be from 2 to 9 samples. To change the number to be averaged to 7 samples:

PUSH 7 RET

Comp-U-Dry responds with

ENTERED 7
MAX TEMP=140°F

140°F MAX TEMP =

This allows entry of the maximum plenum temperature the Comp-U-Dry may use to dry the grain. The range is from 60 to 180°F. Default value is 140°F or last entry.

To enter 165

PUSH 1 6 5 RET

Comp-U-Dry responds with

ENTERED 165°F
INITIAL OPR POINT=165°F

165°F OPR PNT =

This allows entry of the starting plenum temperature. The Comp-U-Dry will adjust operating temperature as required. Range is 60 to 180°F but not larger than the maximum temperature. *Default is last entry or maximum temperature.

To enter 135

PUSH 1 3 5 RET
Operator entries are now complete and Comp-U-Dry will take over the drying process. Operator should now check to be sure fan and burner are on, plenum thermostat is turned to lowest setting, and grain thermostat is turned to highest setting. After sweeps have made two passes around the bin, the grain level indicator should be set to "Auto".

The machine should start (the burners come on if the plenum is below the operating temperature) and run for a short time (50 seconds) before a reading is taken. This allows the tapered sweep to bring "fresh" grain off the floor to read. The Comp-U-Dry will take ten moisture readings in this grain over a period of 30 seconds and show the average of these readings at the left side of the display and the temperature compensated moisture reading on the right side of the display. The printer will show the information on the tape as follows.

The average moisture content will be identical to the individual moisture sample on the first grain test. On subsequent samples, the average moisture content will reflect the average of the last four (4) or the operator selected number of sample readings to be averaged.

The machine will be "ON" ie, transferring grain anytime the individual sample, or the average of the last 4 samples is at or below the set point. An individual reading above the set point will not turn the machine OFF as long as the average is below the set point. The subsequent blending and moisture migration in the storage bin will tend to equalize the grain moisture to the average content.

When the machine is ON, the Comp-U-Dry will take a new grain moisture sample every five minutes, turning the grain removal augers ON or OFF and adjusting the plenum temperature operating point as appropriate.

When the machine is OFF, the Comp-U-Dry will keep the machine off a time proportional to how much wetter the grain is than the set point. The minimum off-time will be 10 minutes. The maximum off-time is one hour.

The Comp-U-Dry will adjust the plenum temperature operating point up or down depending on whether the grain is dryer or wetter than the set point. The amount will depend upon the difference between the set point and the actual grain moisture.
Between samples the operating condition of the dryer is shown on the display. This information is rotated and updated about every 4 seconds as follows.

**Current Time**

**Time of Next Sample**

**Temperature Comp-U-Dry**

Is trying to maintain

in plenum

**Current Plenum Temperature Reading**

**Dry to Setting**

**Last Moisture Sample Reading**

Pressing and holding the [F1] key during this mode will cause the Comp-U-dry to take another sample without waiting for the required time to elapse.

When it is time to read the next moisture sample the display will show the clock time.
TO CALIBRATE METER

1) On startup the Comp-U-Dry will run the sweep and center vertical auger approximately 50 seconds to bring grain off the drying floor and up the center vertical to the slip plate moisture measuring unit. Moisture readings are taken every 3 seconds for a total of 10 readings to obtain a representative average of the grain moisture. When each reading is taken, the time which is presented on the display will "blink".

2) If the discharge augers are running when the Comp-U-Dry starts a read cycle then the time will be displayed and the readings will start without the 50 seconds wait for the grain to be brought up from the drying floor.

3) While the Comp-U-Dry is in a read moisture cycle, take a grain sample from the continous flow moisture sample valve. Allow enough time for the grain being read by the Comp-U-Dry to reach the continous flow sample valve.

4) Measure this sample with your reference meter and record this reading.

5) Subtract the Comp-U-Dry moisture reading from the reference meter reading. If the Comp-U-Dry reading is smaller the difference should be added to the Comp-U-Dry reading. This will allow the two meters to read the same.

NOTE: Due to variations in grain moisture and meter readings it is desirable to take the average of five or more readings. For best correlation these readings should be in the range that you would like the Comp-U-Dry to discharge the grain from the drying floor.

See page 10 of the manual for instructions on changing the meter calibration.
The Comp-U-Dry may be returned to the main menu at any time by pushing RESET. There are three program selections available from the main menu:

- **SELECT ONE**
  - **F1 RESUME** Allows resumption of drying using constants currently in memory
  - **1 MENU** Allows entry into the utilities menu. See section on utilities.
  - **4 DRY GRAIN** Allows entry into the dryer control program.

**F1 RESUME**

This feature allows confirming the moisture meter calibration and skipping over the 4 DRY GRAIN drying constants entry sequence. On initial startup the drying constants will be the default values. Otherwise they will be the operator entered drying constants. The F1 RESUME key may be used on startup or after a reset as follows:

**Tape**

- **SELECT ONE**
- **F1 RESUME**
- **1 MENU**
- **4 DRY GRAIN**

**Display**

- **METER CAL =+1.6**

**Comments**

To select resume

To change follow entry sequence per page 10. To proceed

**NOTE:**

Default or last entry by operator are shown on the tape. Check values to insure they are correct. To change push **[RESET]** and enter thru the 4 DRY GRAIN entry routine

-----RESUMED DATA-----

- **TIME=08:42A**
- **DATE=09/09/37**
- **LOT #=-17A**
- **DRO TO 16.9**
- **METER CAL=+1.6**
- **RDGED TO AVE=7**
- **MAX TEMP=165F**
- **OPR PNT=135F**

The Comp-u-dry will now continue with the drying program
UTILITIES

There are a number of Utility programs available which are useful in checking out and trouble shooting the grain drying system. They are accessed from the Menu selection of the Main Menu as follows:

**TAPE**
- SELECT ONE
- F1 RESUME
- 1 MENU
- 4 DRY GRAIN

**DISPLAY**
- To select Utility programs
- PUSH 1

Comp-U-Dry responds with

**SELECTION 1**

**MENU**
1 READ TEMP——— Allows reading plenum and grain temperatures.
2 READ METER——— Allows reading of grain moisture meter
3 MACHINE——— Allows turning Circulator motor on or off.
4 CONT FLOW ENABLE——— Allows interrupting continuous flow auger.
5 FAN ENABLE——— Allows operation of fan interrupt circuit.
6 BUZZER——— Allows turning buzzer on or off.
7 HI FIRE——— Allows energizing of burner Hi Fire circuits.
8 LO FIRE——— Allows energizing of burner Lo Fire circuits.
E EXIT——— Allows exiting from utilities program back to main menu.
UTILITIES
1 READ TEMP

TAPE

MENU
1 READ TEMP
2 READ METER
3 MACHINE
4 CONT FLOW ENABLE
5 FAN ENABLE
6 BUZZER
7 HI FIRE
8 LO FIRE
E EXIT

DISPLAY

COMMENTS
To read plenum and
grain temperature

PUSH

1

Comp-U-Dry responds with

SELECTION 1
PLENUM=165F GRAIN=095F

To print reading
and get another
reading
PUSH

RET

To EXIT
PUSH

E

Comp-U-Dry responds with

PLENUM=165F GRAIN=095F
SELECTION E

To enter any other
utility PUSH the
number of that
subroutine.

To EXIT to the
main menu
PUSH

E

Comp-U-Dry responds with

SELECT ONE
F1 RESUME
1 MENU
4 DRY GRAIN

Selections are now available from MAIN MENU.

17
Comp-U-Dry responds with

**SELECTION 2**

METER CAL = +1.6

**RAW HEX DATA**

Od5D 14.9 16.5 044F

MOISTURE READING

TEMPERATURE COMPENSATED READING

Comp-U-Dry responds with

**SELECTION E**

SELECT ONE
F1 RESUME
1 MENU
4 DRY GRAIN

NOTE: Moisture readings will not be valid unless grain is moving through the auger.
When the Comp-U-Dry activates the Circulator to transfer grain it does so by feeding power to terminal 5 of the 16 point "F" terminal strip in the Comp-U-Dry. This function may be checked as follows.

Comp-U-Dry responds with

**SELECTION 3**

1=ON 2=OFF E=EXIT

To select circulator

PUSH 3

Comp-U-Dry responds with

**SELECTION 1**

Circulator should start. Power should be available at terminal 5.
To turn circulator off

PUSH 2

Comp-U-Dry responds with

**SELECTION 2**

Circulator should stop. There should be no power at terminal 5
To EXIT

PUSH E

Comp-U-Dry is now at the top of the utilities menu. Any of the UTILITY programs may be addressed by pushing the corresponding number or letter. To EXIT to the top of the main menu PUSH E.
A set of normally closed contacts are wired between terminal 12 and 13 of the Comp-U-Dry 16 point "F" terminal strip to allow interruption of the continuous flow auger during the sample cycle. This function may be checked as follows:

**Tape**

<table>
<thead>
<tr>
<th>Menu</th>
<th>Display</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Read Temp</td>
<td><img src="image" alt="Display Image" /></td>
<td>1. Set continuous flow switch to &quot;AUTO&quot;</td>
</tr>
<tr>
<td>2. Read Meter</td>
<td><img src="image" alt="Display Image" /></td>
<td>2. Set grain thermostat to lowest (wettest)</td>
</tr>
<tr>
<td>3. Machine</td>
<td><img src="image" alt="Display Image" /></td>
<td>setting</td>
</tr>
<tr>
<td>4. Cont Flow Enable</td>
<td><img src="image" alt="Display Image" /></td>
<td>Circulator &amp; continuous flow should turn ON</td>
</tr>
<tr>
<td>5. Fan Enable</td>
<td><img src="image" alt="Display Image" /></td>
<td></td>
</tr>
<tr>
<td>6. Buzzer</td>
<td><img src="image" alt="Display Image" /></td>
<td></td>
</tr>
<tr>
<td>7. Hi Fire</td>
<td><img src="image" alt="Display Image" /></td>
<td></td>
</tr>
<tr>
<td>8. Lo Fire</td>
<td><img src="image" alt="Display Image" /></td>
<td></td>
</tr>
<tr>
<td>E Exit</td>
<td><img src="image" alt="Display Image" /></td>
<td></td>
</tr>
</tbody>
</table>

Comp-U-Dry responds with:

**Selection 4**

1-ON 2-OFF E-EXIT

Comp-U-Dry responds with:

**Selection 2**

To turn continuous flow OFF.

Comp-U-Dry responds with:

**Selection 1**

To turn ON.

Comp-U-Dry is now at the top of the utilities menu. Any of the UTILITY programs may be addressed by pushing the corresponding number or letter. To EXIT to the top of the main menu PUSH E.

To turn OFF machine and continuous flow, set grain thermostat to highest (driest) setting.

The normal mode for the Comp-U-Dry setting of the continuous flow enable is ON. If left in the wrong mode it will correct itself upon RESET or during the first sample cycle.
A set of normally closed contacts are wired between terminals 6 and 7 of the Comp-U-Dry 16 point "F" terminal strip to allow interruption of the Fan Contactor Lock-in Circuit. See installation instructions for wiring details. One hour after receiving the signal from the low grain shut-off that the bin is out of grain, the Comp-U-Dry automatically interrupts the normally closed contacts for a few seconds to turn off the fan. The FAN ENABLE subroutine allows the opening and the closing of these contacts as follows.

Comp-U-Dry responds with

**SELECTION 5**
1=ON 2=OFF E=EXIT

Comp-U-Dry responds with

**SELECTION 2**

Comp-U-Dry responds with

**SELECTION 1**

Comp-U-Dry is now at the top of the utilities menu. Any of the UTILITY programs may be addressed by pushing the corresponding number or letter. To EXIT to the top of the main menu PUSH E.
If the Comp-U-Dry detects a malfunction in any of the drying system components which it monitors, it will print an error message on the tape and turn the BUZZER on. It may also shut down the drying process depending upon the seriousness of the malfunction. The operation of the buzzer may be checked as follows.

**TAPE**

**MENU**
1. READ TEMP
2. READ METER
3. MACHINE
4. CONT FLOW ENABLE
5. FAN ENABLE
6. BUZZER
7. HI FIRE
8. LO FIRE
9. EXIT

Comp-U-Dry responds with

**SELECTION 6**

1=ON 2=OFF E=EXIT

**DISPLAY**

**COMMENTS**

To select BUZZER

PUSH 6

To turn Buzzer on

PUSH 1

To turn Buzzer off

PUSH 2

To exit

PUSH E

Comp-U-Dry is now at the top of the utilities menu. Any of the UTILITY programs may be addressed by pushing the corresponding number or letter. To EXIT to the top of the MAIN MENU, PUSH E.
To operate the burner LO FIRE the Comp-U-Dry closes contacts between terminals 8 and 10 of the 16 point "F" terminal strip in the Comp-U-Dry. To operate the burner HI FIRE the Comp-U-Dry closes contacts between terminals 8 and 10 as well as 8 and 11 of the 16 point "F" terminal strip in the Comp-U-Dry.

See the installation instructions for the proper wiring details. With fan and burner running, burner power on, and thermostat set below plenum temperature this function may be checked using the HI FIRE program as follows.

**Tape**

1. READ TEMP
2. READ METER
3. MACHINE
4. CONT FLOW ENABLE
5. FAN ENABLE
6. BUZZER
7. HI FIRE
8. LO FIRE
9. EXIT

Comp-U-Dry responds with

**SELECTION 7**

1=ON 2=OFF E=EXIT

**Display**

To select HI FIRE

PUSH ~ 7

Contacts between Comp-U-Dry terminals 8 & 10 and 8 & 11 are open

To operate

PUSH 1

Contacts between terminal 8 & 10 and 8 & 11 will be closed.

To turn off HI FIRE

PUSH 2

Contacts between terminal 8 & 10 and 8 & 11 will be open. HI FIRE will be off. To EXIT

PUSH E
To operate the burner LO FIRE the Comp-U-Dry closes contacts between terminals 8 and 10 of the 16 point "F" terminal strip in the Comp-U-Dry.

See the installation instructions for the proper wiring details. With fan running, burner on, and thermostat set below plenum temperature this functions may be checked using the LO FIRE program as follows.

<table>
<thead>
<tr>
<th>TAPE</th>
<th>DISPLAY</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>MENU</td>
<td>E EXIT</td>
<td>To select LO FIRE</td>
</tr>
<tr>
<td>1 READ TEMP</td>
<td>1</td>
<td>PUSH 8</td>
</tr>
<tr>
<td>2 READ METER</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3 MACHINE</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>4 CONT FLOW ENABLE</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>5 FAN ENABLE</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6 BUZZER</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>7 HI FIRE</td>
<td>7</td>
<td>Contacts between Comp-U-Dry terminals 8 &amp; 10 are open To operate</td>
</tr>
<tr>
<td>8 LO FIRE</td>
<td>8</td>
<td>PUSH 1</td>
</tr>
<tr>
<td>E EXIT</td>
<td>E</td>
<td></td>
</tr>
</tbody>
</table>

Comp-U-Dry responds with

<table>
<thead>
<tr>
<th>SELECTION 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=ON 2=OFF E=EXIT</td>
</tr>
</tbody>
</table>

Comp-U-Dry responds with

<table>
<thead>
<tr>
<th>SELECTION 1</th>
</tr>
</thead>
</table>

Comp-U-Dry responds with

<table>
<thead>
<tr>
<th>SELECTION 2</th>
</tr>
</thead>
</table>

Contacts between terminal 8 & 10 will be closed and LO FIRE will be ON. To turn off LO FIRE

PUSH 2

Contacts between terminal 8 & 10 will be open and LO FIRE off To EXIT

PUSH E

Comp-U-Dry is now at the top of the utilities menu. Any of the UTILITY programs may be addressed by pushing the corresponding number or letter. To EXIT to the top of the MAIN MENU PUSH E.
PROGRAM EXECUTION MONITOR

A program execution monitor is installed in the G2 Comp-U-Dry which checks approximately every minute to see if the program is executing. If not it turns off all output control circuits which shuts off the burners, the circulator sweep augers and the transfer augers. This prevents the transfer of wet grain if the drying program is interrupted by power surges or other malfunctions of the Comp-U-Dry.

The functioning of the program execution monitor is checked at 6:00 & 12:00 o’clock. During the monitor check, CONTROL CHECK will be shown on the display. The control check takes about 2 minutes to execute. If the program execution monitor malfunctions then a CAUTION message is printed out. The Comp-U-Dry will continue in the drying program and the buzzer will sound periodically between sample cycles to remind the operator that a vital program control is malfunctioning and should be corrected as soon as possible.

TAPE

----- CAUTION -----
COMPUDRY CONTROL INTERRUPT INOPERATIVE
SEE OWNERS MANUAL. SERVICE IMMEDIATELY
----- CAUTION -----  

DISPLAY

If control check is O.K. then message is not printed on tape.

COMMENTS

If the control check fails PUSH RESET to clear the error flag and try drying again. If the error occurs again correct the malfunction.

OTHER UTILITIES

Available in the utilities but not listed in the menu are a set of programs used by factory personnel, in the manufacture and check-out of the Comp-U-Dry. These programs are accessed by the [E] key when you are in the utilities menu. If this section is inadvertently entered the Comp-U-Dry data is as follows.

TAPE

WARNING..AUTHORIZED USE ONLY. E-EXIT

DISPLAY

As damage may occur to the Comp-U-Dry or some of its subsystems by further entry into these programs, [E] must be pushed to exit to the top of the MAIN MENU.

25
INSTALLING MEMORY RAM AND PROGRAM ROM CHIPS

1) TURN OFF ALL POWER TO FANS AND DRYER CONTROLS.

2) Make sure top of Comp-U-Dry control box is clean and open the front cover. Loosen 4 screws which hold cover on control board box. Slide cover up and out to remove.

3) Remove old memory RAM or program ROM chip. A small screwdriver prying up lightly on the end of the chip will help. Do not pry up on the chip socket.

        ***** CAUTION *****
Chips may be damaged by static electricity.
Leave chip in carrying container until ready to install.
Ground both hands to metal box before handling chip.
Hold ROM or RAM from ends. Do not touch pins.
Chip should be set with pins touching a metal surface
Place removed ROM or RAM in carrying container and return to SHIVVERS.

        ************************

3) Install new memory RAM or program ROM chips. There is a small notch or dot on the end of each chip. This notch or dot should face toward the bottom of the control box. Be careful that all pins are engaged in the socket before seating the chip.

4) Reinstall the cover to the control board box.

5) Close Comp-U-Dry control box front cover making sure signal cables do not get pinched.
TO LOAD PAPER:

1) Place the paper roll on the paper bail, making sure the paper is feeding from under the roll. (As shown)

2) Insert paper behind the printer mechanism turning the paper advance knob in a downward direction. This threads the paper through the mechanism to the front of the printer.

3) Pull paper up and hook through the slot of the spindle, manually turning the spindle clockwise a few turns to start the wrap of the paper. Push the red rewind button after the paper is started to take up the slack.

NOTE: DO NOT pull the paper backwards through the printer. Always pull the paper out from the front of the printer.

REPLACEMENT PAPER: This unit requires Seiko paper #TP401-25. You can obtain this by ordering from your dealer or from Shivvers Inc. Shivvers Part Number C-6144. Do not store paper in direct sunlight or high temperatures.
## ERROR MESSAGES

If the G2 Comp-U-Dry recognizes an error condition, it will usually try at least twice to clear the error before shutting the system down and turning the buzzer on. There will usually be some type of extra printing indicating that an error has occurred. Generally, if there is an error shutdown, press RESET or power off and try drying again. If the error persists, try to observe when the error is occurring and save all information printed on the tape before calling for service.

<table>
<thead>
<tr>
<th>MESSAGE</th>
<th>MEANING</th>
<th>PROBABLE CAUSE and ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>COUNTER NOT CLEAR</td>
<td>Counter on control board not resetting to accept new data.</td>
<td>Replace 597-350A Control board box assembly.</td>
</tr>
<tr>
<td>METER SENDING DATA</td>
<td>Moisture meter keeps sending data after it should have stopped.</td>
<td>Replace 597-375A Moisture Sensor Assembly</td>
</tr>
<tr>
<td>READINGS NOT CHANGING</td>
<td>Data the Moisture Sensor sends is the same on all 10 readings.</td>
<td>1. Check for stuck sweep, blown fuse or heater, loose belts, drive pulley not engaged. If auger turns using manual mode, try running auger in the Comp-U-Dry Utility menu. If auger does not turn in Utility check relay &amp; Comp-U-Dry wiring.</td>
</tr>
<tr>
<td></td>
<td>1. Moisture Sensor auger may not be turning.</td>
<td>2. Moisture Sensor plugged.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>READING OUT OF RANGE</td>
<td>Moisture reading is outside normal range.</td>
<td>1. Check grain sample moisture to compare.</td>
</tr>
<tr>
<td>usually will print</td>
<td></td>
<td>Re-calibrate moisture meter if required.</td>
</tr>
<tr>
<td>ERROR READ= XXXX</td>
<td></td>
<td>2. Clean out Moisture Sensor.</td>
</tr>
<tr>
<td></td>
<td>2. Moisture Sensor wet or plugged.</td>
<td>4. Repair or replace 597-389A Moisture Cable Assembly.</td>
</tr>
<tr>
<td></td>
<td>4. Moisture cable damaged.</td>
<td></td>
</tr>
<tr>
<td>NO TEMP READING</td>
<td>Plenum temperature probe reads 000.</td>
<td>1. If grain temperature &amp; Moisture readings are OK replace 597-378A Plenum Temperature Probe Assembly If not, replace 597-350A Control board box assembly.</td>
</tr>
<tr>
<td></td>
<td>1. Plenum temperature probe damaged.</td>
<td>2. Run burners manually until probe heats up.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Very cold out &amp; burners not running.</td>
<td></td>
</tr>
<tr>
<td>MESSAGE</td>
<td>MEANING</td>
<td>PROBABLE CAUSE and ACTION</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>BAD GRAIN TEMPERATURE</td>
<td>Grain temperature reading over 160 F or below 3 F.</td>
<td>1. Reset Comp-U-Dry &amp; some grain thru manually. Lower maximum plenum temperature. Level grain in the bin.</td>
</tr>
<tr>
<td></td>
<td>1. Grain could be that hot.</td>
<td>2. If plenum temperature &amp; moisture readings are OK then repair or replace 597-389A Moisture Cable or 597-375A Moisture sensor. If not replace 597-350A Control board box assembly.</td>
</tr>
<tr>
<td></td>
<td>2. Moisture Sensor cable or probe damaged.</td>
<td></td>
</tr>
<tr>
<td>PLENUM TOO HOT</td>
<td>Plenum temperature reading is 20 F above operating point.</td>
<td>1. Turn plenum thermostat to lowest setting.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Reset gas pressure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Check &amp; correct.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Repair or replace.</td>
</tr>
<tr>
<td>PLENUM TOO HOT (1 hour after bin out of grain)</td>
<td>Plenum is over 100 F after 1 hour cool-down.</td>
<td>Burner not off due to manual control over-riding the Comp-U-Dry. Turn plenum thermostat to lowest setting.</td>
</tr>
<tr>
<td>RAM BATTERY LOW</td>
<td>Could occur occasionally.</td>
<td>If it occurs every time unit is turned off and on, replace E-5897 RAM</td>
</tr>
<tr>
<td>RAM VALUES CHANGED</td>
<td>Drying constants which are stored in 2 places in RAM memory are not the same.</td>
<td>Can happen if unit shut off at wrong time. Re-set unit and re-enter drying constants. If it keeps occurring, replace E-5897 RAM.</td>
</tr>
<tr>
<td>DRYING PARAMETERS SET TO DEFAULT VALUES</td>
<td>Occurs in association with above two errors. Re-enter drying constants if different from default values.</td>
<td></td>
</tr>
<tr>
<td>MESSAGE</td>
<td>MEANING</td>
<td>PROBABLE CAUSE and ACTION</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PRINTER DOWN</td>
<td>Printer doesn’t pass initialization on startup.</td>
<td>Check printer mechanism gears for dirt. Paper not feeding properly. Check cable connection at both ends. Bad printer. Replace 597-399A Printer Rewind Assembly. Press any key to continue drying without printer.</td>
</tr>
<tr>
<td>NOTE: Other printer errors:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head going back and forth but not printing.</td>
<td>Paper in backwards or wrong paper.</td>
<td></td>
</tr>
<tr>
<td>Leaving horizontal space in characters.</td>
<td>Thermal head element burned out.</td>
<td></td>
</tr>
<tr>
<td>Leaving vertical space in characters.</td>
<td>Dirt on paper platen.</td>
<td></td>
</tr>
<tr>
<td>Rewind not working.</td>
<td>Shim stop too tight. Motor rewind bearing out of place. Pull out and up on rewind shaft to reseat bearing.</td>
<td></td>
</tr>
<tr>
<td>BIN OUT OF GRAIN</td>
<td>Low grain shut-off signals bin is out of grain.</td>
<td>Bin is out of grain. Fill bin. Grain Level Indicator turned off. Turn Grain Level Indicator on. Check Grain Level Indicator light on electrical panel.</td>
</tr>
<tr>
<td>DRYER STOPPED 7:13AM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHUT FAN OFF 8:13AM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>