

SEQUENTIAL PRECIPITATION COLLECTOR

A model APS-1 Precipitation Sampler was installed in September 1982 adjacent to Clingmans Creek monitoring site. This instrumentation is on loan from TVA. It is used to remotely sample precipitation from each individual storm event for chemical analysis. The following operating procedure table describes its use.

MODEL APS-1 PRECIPITATION SAMPLER

OPERATING PROCEDURE

1. Pressurize air tank (100 psi max.)
 2. Turn on power switches:
 - A. Toggle switch labeled "POWER" on control unit (right side of the enclosure)
 - B. Toggle switch on front of clock unit
 - C. Slide switch on the left side of the printing calculator.
- Note: When the control unit power is turned on, the sampler may go through a "cover open" or "cover close" operation.
3. Check the clock-printer by pressing the switch labeled "STEP" on the front of the clock unit. The contents of the display should print and the display will be incremented at the end of the next 0.01 hour time interval.
 4. If the cover is open, depress the "CLOSE COVER" switch and hold it in the depressed state until the cover begins the close cycle.
 5. Test the control system by manually initiating a sample cycle. Short a pair of grids with a metal object or moistened finger. The cover should open and the sample turret should rotate one step. The cover should close at the end of the preset time period or can be closed prematurely by pressing the "close cover" switch as in (4).
 6. Place clean sample bottles in all eight positions of the sample turret and turn the turret to the "START" position.
 7. Turn off the printer switch momentarily to "zero" the display. Press the "STEP" switch one time to print 0.00. The display should indicate 1000.01 at the end of the next time interval.
 8. Set the delay close time by turning on one of the four switches on the control unit. Delay times of approximately 2, 4, 7, and 14 minutes are available.
 9. Set the toggle switch to the left of the four delay switches to either "UNIT" or "CONTINUOUS" sampling as desired. Continuous sampling will be obtained when the toggle actuator is pointing down.
 10. Press the reset switch on the right side of the control unit to ensure that the sampler will step through all eight samples.
 11. Check the air pressure and increase pressure if it is below 80 psi.
 12. The sampler is ready to operate. Close and lock both doors.

PYROHELIOMETERS OR PYRANOGRAPHS

Pyroheliometers or pyranographs are located at two sites, Clingmans Dome and right here at Twin Creeks, located between the two houses. These instruments measure on a chart the amount of sunlight in a given day and on a weekly basis. The following are the major points for collection of data and maintenance.

- Replace chart weekly as early as possible (Tuesday morning at Twin Creeks).
- Cross out "Monday" on the chart and write "Tuesday."
- Write in station name, date, and time (EDT or EST) and leave enough room for the off date and time on new chart.
- Write in the off date and time on chart being removed.
- Take off black cylinder which the chart is wrapped around (by unscrewing screw on top) and rewind clock arm.
- Replace cylinder with new chart and put screw back on.
- Fill needle eye with ink.
- Replace absorption bag biweekly or monthly.
- File removed chart in appropriate folder (the most recent charts are in front).

DATA PROCESSING (the which, how to, and where of recording information)

The data collected from stream sites are recorded on data sheets on a weekly basis. This sheet is self-explanatory (see enclosure 1) and simply records the results derived from the water lab analysis. Huskey Branch was eliminated as an experimental stream site in August 1982.

The results from the TVA acid rain data are recorded on the precipitation chemistry sheets on a weekly basis (enclosure 2). Once this is done, this information is transferred onto FORTRAN sheets to eventually be typed on FORTRAN cards for computer analysis (enclosure 4).

The NADP Field Observer Report form (enclosure 3) is filled out in conjunction with the collection and analysis of the NADP sample on a weekly basis. The first two copies (white and green) are sent out (filled) with the NADP bucket in the black box. The pink copy we keep for our files. This report form is also self-explanatory. About the only thing one needs to know is how to read the rain gauge chart and the laboratory procedure for measuring the conductance and pH.

There is a form (enclosure 5) which gives the update on each streamsite, such as rain amount, stage height, etc. These are filed in the folder "Stream parameters." These forms, like most others, are filled out on a weekly basis.

Also included in the "Stream parameters" folder are none other than the data sheets dealing with stream parameters (enclosure 6). The information for these is copied directly from the little brown notebook (enclosure 7) taken to all the sites to record information. This data is measured with the flow meter on a weekly basis or whenever possible.

Also enclosed are copies of the pyroheliometer or pyranograph (enclosure 8) and rain gauge charts (enclosure 9). Both are filed weekly and their information is eventually copied onto FORTRAN sheets like the one used for the rain chemistry data.

All data should, as promptly as possible, be keypunched or otherwise entered into short-term computer storage on disk. These files should then be transferred to tape for permanent storage once a year.

FILES

The files of 95% of all the data used are located in the yellow cabinet on the left side of the doorway as you enter the Aquatics room. Charts (of all sorts); park weather data; CC, HB, and CC water quality; and the untabulated rain chemistry data are located in the top drawer. All NADP material (including our pink copy of Field Observation Report form, which we fill out weekly after collecting the NADP samples) is located in the second drawer from the top. The CDCP and related satellite telemetry data is filed in the third drawer from the top in the yellow cabinet. Station printouts and the like are located in the fourth drawer from the top.

The charts are divided into different folders according to station and then by year. All charts should have written on them the station name and the on and off dates and times (be sure to write "EST" for Eastern Standard Time" or "EDT" for Daylight Savings Time). Furthermore, when filing anything, the latest edition is facing you--in other words, file the most recent data and/or information in the front of the folder. In general, don't throw anything out until absolutely sure that it is not needed. Also, when taking things out, be sure to put them back exactly where you found them. Otherwise, mass confusion soon results over the location of certain items. The tabulated rain chemistry data folder (recorded on FORTRAN sheets) is located in the bottom drawer next to the yellow filing cabinet.

For more in-depth information, check out the instruction manuals, memos, correspondence, etc., located in the second and third drawers of the yellow cabinet, and also the black looseleaf notebook, which contains copies of equipment catalogues. Also refer to old notes in the second drawer of the yellow cabinet in back of the NADP files.

UPLANDS WEATHER DATA PROCEDURE

1. Daily Collection of Twin Creeks Data

- a. Record high, low, and present temperatures and precipitation amount (if any) on Twin Creeks Data Sheet.
- b. Call in information on Px 30
- c. Do early in the morning

2. Weekly Charting of Park-Wide Data

- a. At the beginning of every month, go to Park Headquarters to pick up last month's weather information.
- b. At Headquarters, obtain the temperature and precipitation sheets from the Dispatch Office. O.B.S. (fire weather) sheets, which contain wind and humidity data, are obtained from the Resource Management Office at Headquarters.
- c. Copies need to be made from these sheets so obtain a xerox key from the Dispatch Office and xerox the information.
- d. Before returning the originals and the key, make sure the copies are legible and write in anything that is unclear.

This information is transferred onto five weather sheets, which are stapled together by week and found in the folder titled, "Park Weather." There are five types of weather data on the sheets; they are: precipitation, wind, temperature, humidity, and precipitation chemistry. The first four types of data are copied from Headquarters records. The fifth, precipitation chemistry, is taken from the folder titled "Rain Chemistry", which contains information and data from the TVA rain collectors. IMPORTANT - When transferring information onto the weather sheets be sure to register the humidity, temperature, and precipitation for the day before, as opposed to the wind and chemistry data, which is registered for the same day (see example).

Once finished, file away sheets in appropriate folders and send away a copy of the work just completed to the following address:

Grant Goodge
Code D-5311
National Climatic Center
Federal Building
Asheville, NC 28801

NOTE: THE REASON SOME MEASUREMENTS
ARE REGISTERED FOR THE PREVIOUS
DAY IS THAT IT TAKES A 24-HOUR
PERIOD TO RECEIVE A HIGH & LOW
READING FOR A DAY

TWIN CREEKS WEATHER DATA

MONTH _____

<u>DATE</u>	<u>DAY OF WEEK</u>	<u>TIME</u>	<u>AMOUNT OF PRECIP.</u>	<u>HIGH TEMP.</u>	<u>LOW TEMP.</u>	<u>OBSERVED TEMP.</u>	<u>CALLED IN TO DISPATCH</u>
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							

REMARKS:

EXAMPLE SHEET DISPATCH SHEET

TEMPERATURES

December, 1981

Date	Hdqs			Lufty			NFG			Twin		Chim		Cades		Cata		Chil		Cosby		Kep		20 MI	
	H	L	O	H	L	O	H	L	O	H	L	H	L	H	L	H	L	H	L	H	L	H	L	H	L
1	61	40	37	47	31	27	31	21	21																
2	65	43	45	52	29	32	34	22	29																
3	62	36	35	55	32	32	46	24	25																
4	63	38	44	59	29	32	35	25	26													56	32		
5	70	30	32	40	30	30	27	16	17																
6				43	16	20	28	14	21																
7	46	24	40	49	18	30	38	23	22																
8	60	50	53	52	29	37	42	34	2																
9	67	29	30	59	28	29	35	15	15																
10	34	25	28	35	22	23	16	9	9																
11	34	18	20	30	9	9	13	6	12																
12	37	25	17	62	15	16	28	12	27																
13				52	15	16	32	22	22																
14	49	19	39	50	16	36	38	30	33																
15	47	31	41	44	16	42	39	15	39																
16	47	23	26	44	22	31	38	12	28																
17	50	26	50	44	19	27	33	11	24																
18	51	22	26	36	24	22	34	8	18																
19	2	26		25	6	7	10	0	0																
20	29	18	18	30	-2	3	10	-1	2																
21	34	4	18	35	-2	19	21	2	16																
22	53	26	38	33	12	32	39	15	37																
23	15	52	54	37	32	37	53	36	33																
24	5	2	37	5	4	7	51	16	41																
25				32	43	32	24	41																	
26	43	31	32																						
27	52	38	40	46	31	36	37	28	33																
28	52	29	31	52	26	30	42	27	41																
29	60	33	36	44	28	30	44	21	24																
30	42	18	20	51	17	18	26	18	24																
31	45	28	34	52	16	33	38	21	32																

FOR
6
MES
5 ON
K WEATHER
ET (SEE
P. 3)

PRECIPITATION

Date	Hdqs	Lufty	NFG	Twin	Chim	Cades	Cata	Chil	Cosby	Kep	20 MI	Date	Hdqs	Lufty	NFG	Twin	Chim	Cades	Cata	Chil	Cosby	Kep
1	.80	1.10	1.40			.60	.96			1.85	.94	17	0	0	0			.18	0			
2	.13	.53	.92			.20	.44				0	18	0	.3	.25				.20			
3	.05		1"			0	.01				.04	19	T	0					.02			
4	.04	.17	3"			.11	.21				.03	20	0	0	0				0			
5	0	.10	1/2"			0	.03					21	0	0	0				0			
6	0	0	0									22	.43					43	.79		.41	
7	0	0	.44			0	0				0	23	.15	.35	.91				.32		.20	
8	0	0	0			0				0	0	24	.05	.08	.05			.07	0		.05	
9	0	0	0			0	+			0	0	25						.87	.85		.67	
10	0	0	2"			+	1/4"		.04		0	26	.78						.49		.04	
11	0	0	0			0	0				0	27	+	1.50	0				0		.01	
12	0	0	0			0	0				0	28		0	0				0		0	
13	0	0	0				0				0	29	.05	0	0				0		0	
14	.20	.60	.86								.46	30	0	0	0				0		0	
15	.19	.47	.10			.07	.20				.07	31	.05	.01	Finer				.11		.3	
16	.37	0	0			.23	.23		.34		.15											

Precipitation figure should be the amount of rainfall or melted snow. Enter amount of weather conditions should be noted

EXAMPLE SHEET

E: L.R. IS ANOTHER NAME
FOR HEADQUARTERS

'OBS' AFFIRMS LOGGING SHEET
USE SAME DATE.
(SEE P. 2)

HUMIDITY (REGISTER FOR DAY BEFORE)
SEE 4TH PAGE OF PARK
WEATHER SHEET

Command	station number	OBS time	I.W	Dry bulb	Wet* bulb	MR 2 ML 1	Wind dir. spd.	10 hr T/L	Temp max min	gRH max min	Prec. dur. amt	3 4 5 MR UNKO
OBS	407701	13	7	35	35	1 4	7	50+	42 36	100 100	12.27	1
OBS	407602	13	7	33	34	1 4	0	50+	43 33	100 100	10.17	1
OBS	313901	13	6	41	39	1 4	0	50	41 14	100 100	24.35	1
OBS	407701	13	0	38	34	1 1	1	50+	39 24	100 70	6.16	1 3
OBS	407602	13	0	36	31	1 1	0	50	39 21	100 100	8.28	1 3
OBS	313901	13	0	41	34	1 1	5	30	42 16	100 100	25.6	1 3
OBS	407701	13	5	48	45	1 3	4	50+	53 28	100 70	4.10	1 3
OBS	407602	14	3	46	44	1 3	7	50+	48 28	100 95	8.31	1 3
OBS	313901	13	5	32	33	1 3	7	48	45 21	100 100	4.30	1 3
OBS	407701	13	7	23	21	1 3	8	50+	50 21	100 71	3.10	1 3
OBS	407602											
OBS	313901	13	1	24	24	1 3	1	29	27 23	100 100	0.13	1 3
OBS	407701											
OBS	407602											
OBS	313901											
OBS	407701											
OBS	407602											
OBS	313901	13	0	27	27	1 5	5	21	27 0	100 100	0.12	1 2

USE SAME DATE WHEN TRANSFERRING (From OBS)

WEEKLY GRSM WIND DATA*

DAY	DATE	HDQRS		LUFTY		NFG		TWIN		CHIM		CADES		CATA		CHIL		COSBY		KEP		20MI		BALS	
		Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp	Dr	Sp
TUES	12/15	7	1	0	0																			Dr	Sp
WED																									
THURS																									
FRI																									
SAT																									
SUN																									
MON																									

HDQRS = Headquarters, L.R.
 LUFTY = Oconaluftee
 NFG = Newfound Gap
 TWIN = Twin Creeks

CHIM = Chimneys
 CADES = Cades Cove, C.C.
 CATA = Cataloochee

CHIL = Chilhowee
 COSBY = Cosby
 KEP = Kephart

20MI = Twenty Mile
 BALS = Balsam Mountain
 L.R. = Little River

*Dr = direction; Sp = speed

Direction codes: 0 = calm
 1 = NE
 2 = E
 3 = SE
 4 = S
 5 = SW
 6 = W
 7 = NW
 8 = N

WEEKLY GRSM PRECIPITATION DATA (Inches *)

[illegible]

CHIL = Chilhowee
COSBY= Cosby
KEP = Kephart

20MI = Twenty Mile
BALS = Balsam Mountain
L.R. = Little River

7

WEEKLY GRSM PERCENT RELATIVE HUMIDITY DATA

CHIM = Chimneys
CADES = Cades Cove
CATA = Cataloochee
CHIL = Chilhowee
COSBY= Cosby
KEP = Kephart
20MI = Twenty Mile
BALS = Balsam Mountain
L.R. = Little River.

CHIL = Chilhowee
COSBY = Cosby
KEP = Kephart

20MI = Twenty Mile
BALS = Balsam Mountain
L.R. = Little River

5

SAME DATES
AS ON RAIN CHEMISTRY SHEETS

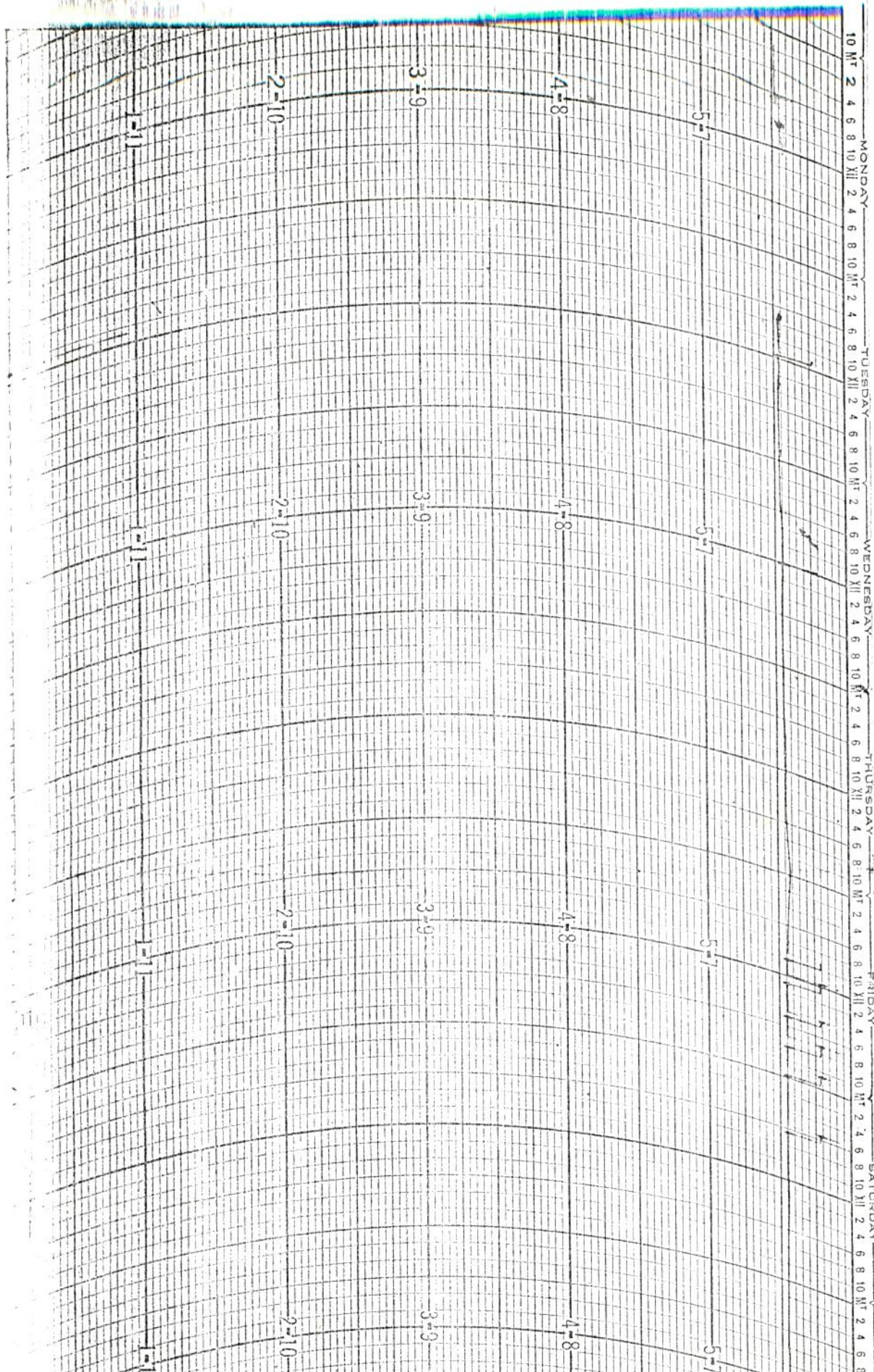
WEEKLY GRSM PRECIPITATION SAMPLE CHEMISTRY DATA*



	ELKMONT	CLINGMANS DOME	COSBY	SMOKEMONT	20 MI (FONTANA)
DATE ON	12/8/81				
DATE OFF	12/15/81				
AMOUNT (mm)					
pH	4.35				
Conductance	22.62				
Acidity	11.6				
Turbidity	.23				
Sulfates	.9				
Nitrates	3.5				
COMMENTS:					

*From TVA collector sites

CHART NO. 5-4046-B
12 INCH DUAL TRAVERSE 192 HOURS
UNIVERSAL RAIN GAGE
BELFORT INSTRUMENT COMPANY
BALTIMORE MARYLAND, U.S.A.



RAIN GAUGE AND THERMOMETER EXPLANATIONS

(Taylor 5460 is the one being used)

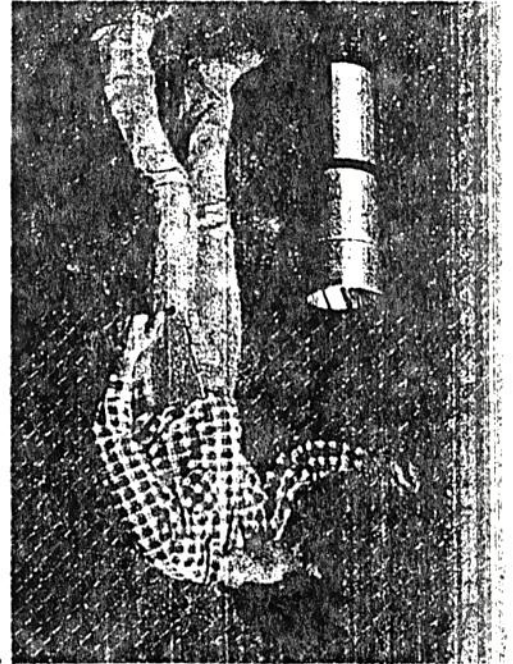
Rain Gauges

FG
Prices Guaranteed
on selected items
till Nov. 1, 1982.

U.S. Weather Bureau Rain and Snow Gauge

For professional rain fall measurements. Accumulates up to 26" of rain fall with a measuring accuracy of 0.01 inches. The knife-edged funnel (top portion of gauge) collects and delivers rain fall into the copper "receiver". The funnel-receiver ratio is 10:1, so that 1" of rain delivers 10" of water into the receiver. Receiver capacity is 20" (2" of rain fall) and any excess overflows into the outer chamber where it can be measured after the quantity in the receiver has been removed.

89018	Gauge w/o tripod. Sh. Wt. 20 lbs.	\$170.00
89019	Tripod support for Gauge.	41.00
89020	Repl. measuring stick.	8.00



MAXIMUM-MINIMUM THERMOMETER NO. 5460

A maximum/minimum registering thermometer records the highest and lowest temperatures seen by the thermometer between settings. A "U" shape tube holds a clear liquid and columns of mercury. As the temperature increases, the liquid in the temperature sensing bulb expands forcing the mercury up the maximum scale. When the temperature falls, the liquid contracts and the mercury follows it back up the minimum scale. Small glass floats called limit markers are pushed to the temperature limits by the two sides of the mercury column. The markers are held in position by a magnet in the back of the case and the maximum/minimum temperatures are read at the bottom point of the markers. The current or immediate temperature can always be read at the top of the mercury column as in a single tube thermometer. It is important to note that the minimum scale is inverted with the lower temperatures above the higher. Until you become accustomed to reading this "upside down" scale, some care may be required to get accurate readings.

Separation of Mercury or Liquid

Rough handling in shipment will cause separation of the mercury. Air bubbles may also appear in the clear liquid on the maximum side. The following instructions explain how to reunite the mercury and eliminate the air bubbles. These steps should be followed before using the thermometer:

1. Hold the thermometer at the top (see Fig. 1) then strike the bottom end sharply several times against the palm of the hand. This will encourage any mercury trapped in the upper ends of the thermometer to move down toward the columns.
2. Then grasp the thermometer at the top (in a tennis racket grip—see Fig. 2) and swing the thermometer downward in an arc to sling the separated mercury together.
3. Repeat the above steps as necessary to reunite the mercury.

If this procedure does not remove the air or reunite the columns completely, hold the thermometer upright under hot tap water so the water washes over the temperature sensing bulb. Do not allow the column to rise above 130°F (55°C). Hold the thermometer in an upright position to cool to room temperature. Wipe Dry.

Mounting

For accurate maximum/minimum temperatures, always mount the thermometer in an upright position. Do not locate the thermometer in direct sunlight or where there is a great deal of reflected light. To prevent further separations, store the thermometer in an upright, top end up, position.

Resetting the Thermometer

To reset the thermometer press the center button and hold down. This releases the markers. Hold until the markers come to rest on the top of the mercury columns. For the best use of your Taylor Max-Min thermometer, read and reset at least once daily.

Reshipping the Thermometer

If it is necessary to reship the thermometer, place the thermometer in the box with the louvered end elevated. Then, ship the box in a larger carton with at least 2 inches of packing around it.

Fig. 1

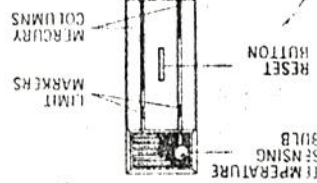
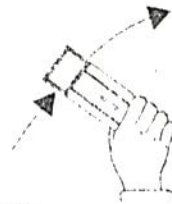


Fig. 2

Fig. 3



FULL ONE (1) YEAR WARRANTY

For one (1) year from date of purchase, Taylor Instrument will repair or replace this instrument if defective in material or workmanship. This warranty service is available by returning the instrument to Taylor Instrument/Sybron Corporation, Arden, North Carolina, 28704.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

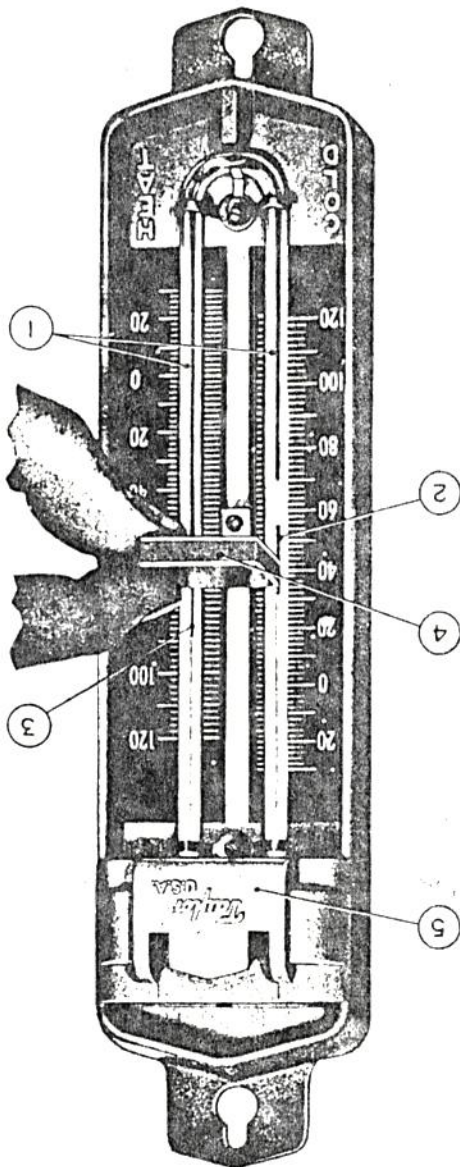
SYBRON Taylor

CONSUMER-INDUSTRIAL
PRODUCTS

TAYLOR INSTRUMENT/SYBRON CORPORATION/ARDEN, N.C. 28704



for use of Taylor No. 5458 Maximum-Minimum (Low) Self-Registering Thermometer



Features of Construction
Glass bulb, at left behind bulb guard, is filled with a liquid which expands or contracts with increase or decrease of temperature. Connecting U-tube (1) contains the mercury column and part of the expanding liquid, while the expansion chamber, at right behind bulb guard, takes care of the increase and decrease of volume caused by the expansion and contraction of the liquid in the bulb and U-tube (1).
In the left-hand bore of the U-tube (1) is the minimum index, (2), while in the right-hand bore is the maximum index (3).
To read temperature registered by either index, refer to bottom of edge of index. To read temperature as indicated by either mercury column, refer to the meniscus, or top of column.

How it Operates

Observe left scale for low temperature reading and right scale for high temperature reading.
As temperature surrounding the glass bulb, behind bulb guard, increases, the liquid therein expands, forcing the mercury column down on the left side of the U-tube (1), and up on the right side of the tube, carrying with it the maximum index (3). As the temperature surrounding the bulb decreases, the liquid therein contracts, causing the mercury column on the left side of the U-tube to rise, carrying with it the minimum index (2). The maximum index (3) remains at the highest graduation indicated during a temperature increase, while the minimum index (2) remains at the lowest graduation indicated during a temperature decrease.
Resetting the Indices
To reset, place the ceramic magnet (4) across the U-tube (1) in horizontal position as illustrated, and draw downward slowly until the indices come to rest gently on the tops of the mercury columns.
The special ceramic magnet (4) supplied with the Thermometer is kept in the pocket provided (5).

To Unite Mercury Columns

Shipping or severe vibration may cause separations in the mercury column on either side of the thermometer. Air bubbles may be formed in the heat side of the thermometer. These can usually be readily corrected by the following:
1. Grasping the thermometer at the top, give several downward swings, at a moderate force, until the mercury column is united on both sides. Excessive force in the downward swing may displace the mercury in the bore, causing inaccurate readings.

To Release Indices

If either index settles into its mercury column, follow the above instructions. After the first few swings, use the magnet to draw the index out of the mercury. If index (3) has been forced into the expansion chamber, at right behind bulb guard, manipulate it by tapping gently and using the magnet to return it to the bore of the tube.
2. While the procedure in step one may eliminate some of the air bubbles, it is usually necessary to immerse the thermometer completely at about 130°F. This causes the column to expand upward on the heat side, driving the air bubbles into the tip. It is not recommended that the thermometer be completely immersed above 135°F. If this is insufficient to remove the air, a higher temperature may be used, if extreme care is exercised, by immersing only the top, including the bulb and tip, and watching to see that the tip does not fill closer than 3/16" from the top.

Important: When reshipping,
pack very carefully with thermometer
bulbs at top of carton. Plainly
mark carton to indicate top of
instrument. Mark package: FRAG-
ILE—HANDLE WITH CARE! Ship
by Express if possible.

SYBRON Taylor
CONSUMER-INDUSTRIAL
PRODUCTS

TAYLOR INSTRUMENT • SYBRON CORPORATION • ARDEN, N. C. 28704

CAMEL HUMP
[612186]

93051

6.31

18.6

35

3.0

59.

2.50

$$m_i$$

0

066 270

9.2

13.3

6.5

35

56.

030

g. 2.6

0

12056

95.5

12.2

1771

6

9.1

75

333

3.

0

$$L = 9 \quad L = 1.1$$

Temp. 1.29

$$\text{total corr.} = 1.45$$

2-1073-1.65

3-2.59-21

39
1
1

10-21

TION:

STATION

AIR

WATER

#5

TIME	BULK RAIN	STAGE HEIGHT	AIR TEMPERATURE	WATER TEMPERATURE	REMARKS
1/3/82 3:00	56"	57 cm.	12°C	4°C	stage height - didn't record properly, last week
2/82 10:00	74"	48 cm.	21°C	8°C	stage height recorded taken out for repairs
8/82 2:00	23"	50 cm	17.5°C	8°C	st. ht. recorder still broken, pH recorder chart needed replacement
25/82 10:00	1.50"	52 cm.	23°C	11°C	pH recorder didn't operate, could not be calibrated, so we took it back for repair
1/82 4:00	1.65"	50 cm.	21°C	13°C	pH recorder STILL needs repair, stage height recorder needs new clock

#6

FLOW

LOCATION: CAMEL HUMP DATE: 3.2.82 TIME: 1:30 STAGE HT. 50

Transect #1

Stream Width 3.65 m

	Flow*	Depth**
#1	<u>56</u>	<u>8"</u>
#2	<u>143</u>	<u>7"</u>
#3	<u>154</u>	<u>9"</u>
#4	<u>33</u>	<u>7"</u>
#5	<u>64</u>	<u>6"</u>

Transect #2

Stream Width 3.7 m

	Flow	Depth
#1	<u>63</u>	<u>6 1/2"</u>
#2	<u>66</u>	<u>7"</u>
#3	<u>98</u>	<u>8"</u>
#4	<u>105</u>	<u>11"</u>
#5	<u>50</u>	<u>15"</u>

Transect #3

Stream Width 3.1 m

	Flow	Depth
#1	<u>45</u>	<u>10"</u>
#2	<u>123</u>	<u>11"</u>
#3	<u>74</u>	<u>14 1/2"</u>
#4	<u>59</u>	<u>15 1/2"</u>
#5	<u>27</u>	<u>16"</u>

LOCATION: CAMEL HUMP

DATE: 2.3.82

TIME: _____

STAGE HT. 75

Transect #1

Stream Width 4.4 m

	Flow	Depth
#1	<u>130</u>	<u>12"</u>
#2	<u>163</u>	<u>14"</u>
#3	<u>190</u>	<u>12"</u>
#4	<u>210</u>	<u>13"</u>
#5	<u>175</u>	<u>15"</u>

Transect #2

Stream Width _____

	Flow	Depth
#1	_____	_____
#2	_____	_____
#3	_____	_____
#4	_____	_____
#5	_____	_____

Transect #3

Stream Width _____

	Flow	Depth
#1	_____	_____
#2	_____	_____
#3	_____	_____
#4	_____	_____
#5	_____	_____

* Cm/sec.

**Inches

TRANSECTS

TRANSECT I.

Stream width 5 m 90

Flow

Depth

#1	70/min	13 in.
#2	104/min	18 in.
#3	22/min	14 in.
#4	58/min	11 in.
#5	34/min	15 in.

FLOW

Camel Hump

TRANSECT III.

Stream width 1.5 m

Flow

Depth

#1	108/min	7 in.
#2	106/min	7 in.
#3	90/min	11 in.
#4		
#5		

FLOW

Camel Hump

TRANSECT II.

Stream width 2.4 m

Flow

Depth

#1	74/min	3 in.
#2	75/min	3 in.
#3	134/min	5 in.
#4	64/min	7 in.
#5		

FLOW

#7