

# The 2030 Taximeter Calibration Made Easy



## The Taximeter Displays

The 2030 taximeter has 3 display windows: it has a FARE display, an EXTRAS display, and a RATE display. When you are calibrating the meter, the information that you are inputting will be placed in the FARE display, the rate that you are setting will be shown in the RATE display, and the item for the rate that is being set will be shown as an index number in the EXTRAS display.

## The Taximeter Switches

The 2030 has 6 switches that are labeled 1 – 6. During calibration the switches are used as follows:

**What you should know:** During calibration a digit in the FARE display will be blinking, this is the active digit whose value can be changed from 0 to 9.

- Switch 1:** Is used to move the blinking digit to the left.
- Switch 2:** Is used to move the blinking digit to the right.
- Switch 3:** Is used to rotate the blinking digit from 0 – 9.
- Switch 4:** Is used to advance the index number.
- Switch 5:** Is used to terminate the calibration.

### ❖ You have learned

That the 2030 has 3 displays; during calibration the information that you are inputting goes into the FARE display. There is an index number that relates to the function that you are programming that is shown in the EXTRAS display; the RATE that you are programming is shown in the RATE display.

You have also learned how to use the switches to input data, advance to different calibration position, and to terminate a programming session.

## Calibrating Your Rates

- Place the taximeter in the FOR HIRE / VACANT mode. Remove the program cover and insert the program key into the socket in any position, any which way.
- Press Switch 4.

## Setting the Clock

The figures below show what you will see in the various display windows. An index number for the function that you are setting is shown in the Extras display.

### Setting the Seconds – Index 1

FARE	EXTRAS	RATE
36	1	

**Note:** 36 seconds is shown in the FARE and index 1 in the EXTRAS. Nothing is shown in the RATE display when the clock and calendar functions are being calibrated.

### Setting the hours and Minutes – Index 2

FARE	EXTRAS	RATE
1730	2	

**Note:** The hour is set in 24 hour format; the time shown is 5:30 PM

### Setting the Day of the Week – Index 3

FARE	EXTRAS	RATE
07	3	

Sunday = day 1; Saturday = day 7

### Setting the Date – Index 4

FARE	EXTRAS	RATE
1012	4	

The date shown is October 12

### Setting the Year – Index 5

FARE	EXTRAS	RATE
09	5	

The date shown is 2009

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## What You Should Know About the Rates

During calibration of the 2030 you can access 6 rates: Rate 0, Rate 1, Rate 2, Rate 3, Rate 4, and Rate 5. Of these, only Rates 1 – 4 are used to meter fares.

Rate 0 is used to set certain operating conditions of the 2030. Rate 5 is used to program printing information that is printed on receipts if the meter is equipped with an auxiliary or built-in printer.

## Setting Rate 0

*Note: you can temporarily ignore Rate 0 indexes 0, 1, 2 and go directly to index 3.*

Rate "0" is used for a special purpose. It is used to tell your taximeter exactly how you want it to operate. Rate 0 has 8 positions that you can adjust.

### Setting Rate 0

Your meter can be programmed to rate change itself at a future date. This feature is called Calendar Rate Change (CRC). CRC works within a calendar year. This topic will be covered in a future release of this manual

### Setting Rate 0 - Index 0

FARE	EXTRAS	RATE
10704	0	0

The meter is instructed to change its rate on July 4. The 1 shown, above, authorizes the rate change; it will be removed by the meter after it changes its rates

### Setting Rate 0 - Index 1 or 2

FARE	EXTRAS	RATE
21806	1	0

The above data in index 1 of Rate 0 tells the meter to operate Rate 2 starting at 18 hours and ending at 06 hours. This feature is called a Time Triggered Rate (TTR); it is controlled by the clock.

FARE	EXTRAS	RATE
31620	2	0

Index 2 operates in the same manner as index 1. In the above example, we are telling the meter to operate using Rate 3 from 16 hours to 20 hour.

### What You Should Know

If you are not using a TTR rate, Indexes 1 and 2 must contain zeros.

### Setting Rate 0 - Index 3 / Setting the Odometer

FARE	EXTRAS	RATE
100	3	0

The 100 shown above in the Fare display represents 1/10th of the number of distance pulses the car produces in 1 mile. For calibration purposes, we assume that the number of distance pulses in 1 mile is 1000.

*Note: If you are In a metric area, use 100 to represent 100 meters (1/10 km)*

### Setting Rate 0 - Index 4 / Setting the Number of Rates

FARE	EXTRAS	RATE
1	4	0

Your meter has 4 independent rates. Enter the number of rates used in your area in this position.

*Note that the above illustrates the selection of 1 rate.*

### Setting Rate 0 - Index 5 / Formatting the 2030

FARE	EXTRAS	RATE
4	5	0

This position allows you to enter a code that tells the 2030 how you want it to work. For example, if you wanted the meter to start with the waiting time off, you would enter a code of 4, if not, enter 0.

Select and add the values of all the desired options and place their sum in the index 5 position.



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## List of Options

**a:** If more than 1 rate is used, allow rate selection when meter is on. (a = 1)

**b:** If "b" is chosen (meter is printer type or connected to an auxiliary printer unit), the meter will not shut off unless a passenger fare receipt is printed. Also, the meter cannot be turned on unless the printer is connected.

(b = 2)

**c:** When "c" is chosen, the meter will come on in the TIME-OFF mode.

**c: Time Off** (c = 4)

**d: TTR1 Extra** (d = 8)

**e: TTR2.Extra** (e = 16)

**f.: Reserved.** (f = 32)

**g: Reserved.** (g = 64)

**h: Reserved.** (h = 128)

Note: Options d and e are used to tell the meter to generate extras automatically at a given time of day.

Note: The reserved options exist but will be covered in a future release of this manual.

## Setting Rate 0 - Index 6 / Resetting the 2030's Statistics

FARE	EXTRAS	RATE
1	6	0

Your meter compiles a number of statistical data that can be reset to zero. A "1" in position 6 of Rate 0 to reset the statistic registers to zero.

**Note:** See the taximeter-operating manual to learn about the statistics.

## Setting Rates 1 Through 4

### What You Should Know About the Rates

1. The rate that you are programming is displayed at the extreme right of the in the Rate Display.
2. Each Item that you program has an index number that is shown in the Extras Display. There are 7 indexes for each rate.
3. Each index has the same meaning for each rate. For example, index 1 is the starting fare for each rate.

**Note:** The starting fare is often referred to as: Flag Drop, or the Open.

## Hands-on – How to Set The Meter Rates

### Setup example 2

#### Rate 1

Open	\$2.50	for the first 1/8 <sup>th</sup> mile
Increment	\$0.25	for each additional 1/8 <sup>th</sup> mile, this equals \$2.00 per mile.
Extras	\$1.00	allow 5 extras
Init Dist	1/8 <sup>th</sup> mile	
Add Dist	1/8 <sup>th</sup> mile	(eight increments per mile)
Time	36 seconds	(\$25.00/ hr)

In working out the above rate it will be assumed that the car into which it will be fitted generates 1000 pulses per mile (620/km).

### Setting Rate 1 - Index 1 / Setting the starting fare

FARE	EXTRAS	RATE
250	1	1

In the above illustration, rate 1 is programmed with a starting fare of \$2.50

Note: The RATE display shows the rate that you are programming.

### Setting Rate 1 - Index 2 / Setting the Money Increment

FARE	EXTRAS	RATE
25	2	1

The above sets Rate 1 to increment by \$0.25.

### Setting Rate 1 - Index 3 / Setting the Extras

FARE	EXTRAS	RATE
100	3	1

The monetary value of the Extras for Rate 1 is set at: \$1.00

Each press of switch 3 will cause the programmed value of the extra to be displayed, or added to the previous ones. You will learn that index 7 allows you to limit the quantity of Extras that the meter will produce.

**What you should know about indexes 1, 2, 3:**

Indexes 1, 2, and 3 has to do with money

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## Indexes 4, 5, and 6 – Setting Distances and Time

**What you should know** Index 4 is linked to Index 1, it is the distance that is assigned to the open. Similarly, index 5 is linked to index 2, it is the distance assigned to each increment amount.

**You should also know** that the taximeter determines distances by reading sent to it by the car's drive chain. Each car will generate a fix number of pulses for each mile or kilometer that is driven.

### Setting Rate 1 - Indexes 4 and 5

Let's complete the calibration using 1000 pulses per mile. Since 1/8 mile is the required distance for each increment, 1/8 of 1000 equals 125. We will place 125 in indexes 4 and 5.

**Remark:** In our example, the Initial and Additional distances are equal but they need not be.

FARE	EXTRAS	RATE
125	4	1

**Initial Distance:** The distance that is assigned to the open (index 1) is called the initial distance. The value for index 4 does not have to be the same as the value for index 5. If for example, the fare was specified as \$2.50 for the first 1/10 mile, then the value for index 4 would be 100.

FARE	EXTRAS	RATE
125	5	1

**Additional Distance:** After the initial distance has been driven, fare increments use the number of pulses that is placed in index 5.

### Setting Rate 1 - Indexes 6 The Waiting Time

#### Calculating the value to be place in index 6

Perform the following steps to calculate the value for the waiting time that is to be programmed into index 6. Compute the waiting time using the formula shown below:

$$\text{Waiting time} = \frac{1000 \times \text{Seconds}}{\text{Additional Distance}}$$

Multiply the number of seconds of the waiting time by 1000 and divide it by the value loaded into index position 5. Placed the result in index 6 of the respective rate.

Here's how to work out the value to be placed in index 6: Thirty six (36) seconds was specified for the waiting time. Multiply 36 by 1000 then divide the result by 125, this gives an answer of 288 which is to placed in index 6.

FARE	EXTRAS	RATE
288	6	1

### Setting Rate 1 - Indexes 7 Controlling the Number of Extras

FARE	EXTRAS	RATE
5	7	1

The monetary value of the extras is placed in index 3. Each press of switch 3 will cause the programmed value of the extras to be added to any previous ones. The number of extras can range from "0" to the maximum amount that can be displayed. If you don't want extras, enter 0, for the quantity of extras, in position. In the illustration above, the extras are limited to 5.

**Note:** If you don't want Extras, enter a zero in index 7.

*This space is intentionally left blank for your notes*



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## Reviewing the Setup Data

When the meter is in the FOR HIRE mode, repeated presses of switch 2 will display most of the data that you have programmed into the meter.

FARE	EXTRAS	RATE	Comments
Hour: minutes.	Blank	Blank	Time in 24 hour format
	1	Blank	Meter's software model No.
	2	Blank	Revs used in auto calibration.
	3	Blank	ID Number
	0	0	CRC
	1	0	Memo 1
	2	0	TTR - Start and end time
	3	0	1/10 revs in 1 mile
	4	0	# Of rates
	5	0	Meter Format
	6	0	Meter Format 2
	7	0	Meter Comm. Format

	1	1 - 4	\$ Open - starting fare
	2	1 - 4	\$ Increment
	3	1 - 4	\$ Extras
	4	1 - 4	Initial distance
	5	1 - 4	Additional distance
	6	1 - 4	Waiting time
	7	1 - 4	Number of Extras

**Note:** If you think that your meter is inaccurate, always review the calibration data.

## How to Determine Your Revs

### What you should know:

1. Your 2030 taximeter is so versatile, that by pressing a few buttons when it is off your meter stops being a taximeter and becomes a special instrument for you. Your taximeter becomes a pulse counter.
2. To use your 2030 taximeter as a pulse counter you don't have to open it or use the program key.
3. When the 2030 becomes a pulse counter, it not only shows you the distance pulses produced by your car, it counts them for you.
4. If you are ever doubtful about the functioning of your vehicle's distance pulse generator unit, let your 2030-meter test it for you.

## Using the 2030 for Pulse Counting

When your meter is off, press switch 2 twice (2) then press switch 4. The meter will display 3 zeros in the Fare Display as shown.



1. Drive your car one mile and note the meter pulse reading; the reading is your "revs" (pulses per km). The number of revs per mile can range from 800 to 2000 revs in a km, or even higher.
2. You can freeze the revs count by pressing switch 1. When switch 1 is pressed, no further pulse counting will occur and the TIME OFF lamp will come on.
3. To return the 2030 to its normal operating mode, press switch 2 or 3.

## Automatic Calibration

Your meter can perform automatic calibration. Here's what you should know:

1. Program your meter based on, let's say, 1000 revs (You could choose a different number, but most people use a 1000).
2. Place your meter in the pulse counting mode
3. Drive your car 1 mile (precisely measured mile).
4. Insert the program key then press Switch 5.
5. Your meter will precisely calibrate itself for the measured number of pulses.
6. Your meter will display "2030" to indicate that it has self-calibrated.

## If You Know Your Revs

1. Place your meter in the pulse counting mode
2. Insert the program key then press Switch 4. The meter will enter into a data entry mode.
3. Use switches 1, 2 and 3 to enter the number of revs, for example, 2050.



4. Press switch 5; the meter will display "2030" to indicate that it has self-calibrated.

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## How to Program the Printer Lines

If your meter is equipped with a printer, or you have added a Pulsar auxiliary printer unit to your meter, the following instructions will show you how to program the 5 lines that you can customize.

**Remarks:** Rate "5" is not a functioning rate in the sense that rates 1 - 4 are. Rate "5" is used to program the 5 lines that you can customize that will appear on the passenger receipt.

Lines 1 and 2 are printed on the fare and statistics receipts.

### Rate 5

Sixteen characters can be programmed in each line - a blank space must be coded as a character. Use the character directory to find the numerical code for the character to be programmed.

**Lines 1- 5:** The line to be programmed is shown to the left in the Extras display; the column is shown on the right. Let's interpret the below figure. Rate 5 means that we are programming the lines, and that we are programming column 01 of line 1. Code 34 in the FARE display indicates that we are programming a "Y."

FARE	EXTRAS	RATE
34	1 01	5

In the below figure, character 2 is entered in line 5 column 16.

FARE	EXTRAS	RATE
2	5 16	5

### Line Programming examples

Line 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message	sp	Y	E	L	L	O	W	SP	C	A	B	SP	C	O	SP	sp
Code	37	34	14	21	21	24	32	37	12	10	11	37	12	24	37	37

(SP = SPACE)
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Line 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message	sp	C	A	R	SP	N	U	M	B	E	R	SP	1	7	sp	sp
Code	37	12	10	27	37	23	30	22	11	14	27	37	1	7	37	37


Line 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message	T	H	A	N	K	S	.	.	.		M	A	Y		W	E
Code	29	17	10	23	20	28	43	43	43	37	22	10	34	37	12	14


Line 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message	S	E	R	V	E		Y	O	U		A	G	A	I	N	
Code	28	14	27	31	14	37	34	24	30	37	10	16	10	18	23	37


Line 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message	C	A	L	L	sp	sp	sp	sp	3	6	1	-	9	2	9	2
Code	12	10	21	21	37	37	37	37	3	6	1	39	9	2	9	2




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## Character Table Directory

CHARACTER	CODE		CHARACTER	CODE
0	0		@	48
1	1		`	49
2	2		a	50
3	3		b	51
4	4		c	52
5	5		d	53
6	6		e	54
7	7		f	55
8	8		g	56
9	9		h	57
A	10		i	58
B	11		j	59
C	12		k	60
D	13		l	61
E	14		m	62
F	15		n	63
G	16		o	64
H	17		p	65
I	18		q	66
J	19		r	67
K	20		s	68
L	21		t	69
M	22		u	70
N	23		v	71
O	24		w	72
P	25		x	73
Q	26		y	74
R	27		z	75
S	28		{	76
T	29			77
U	30		}	78
V	31		~	79
W	32			80
X	33		!	81
Y	34		"	82
Z	35		%	83
*	36		&	84
(space)	37		'	85
#	38		+	86
-	39		,	87
:	40		;	88
/	41		<	89
\$	42		>	90
.	43		?	91
_	44		[	92
(	45		\	93
)	46		]	94
=	47		^	95

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## Program Work Sheet

	FARE	XTRA	Rate	Car:	Revs:	Date / - /
CRC		0	0			
TTR 1		1	0			
TTR 2		2	0			
1/10 Dist		3	0			
# Of Rates		4	0			
Format		5	0			
Clr. Stat.		6	0			
		7	0			

	FARE	XTRA	Rate		FARE	XTRA	Rate		FARE	XTRA	Rate		FARE	XTRA	Rate
Open \$		1	1			1	2			1	3			1	4
Incr. \$		2	1			2	2			2	3			2	4
Extras \$		3	1			3	2			3	3			3	4
Init Dist		4	1			4	2			4	3			4	4
Ad. Dist		5	1			5	2			5	3			5	4
Time		6	1			6	2			6	3			6	4
# of Xtrs		7	1			7	2			7	3			7	4
	\$	Sec			\$	Sec			\$	Sec			\$	Sec	

Line 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message																
Code																

Fare Receipt

Line 2	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message																
Code																

Fare Receipt

Line 3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message																
Code																

Fare Receipt

Line 4	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message																
Code																

Fare Receipt

Line 5	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Message																
Code																

Fare Receipt

Notes



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## ELECTRICAL SHEET

### Connecting the Taximeter

Wire Color	Purpose	Connect To
Red	+ 12 volts	Constant un-switched + 12volts source (meter should work even if car is off)
Black	Ground	Connect this wire to Car's body
Green	Pulse wire	This wire receives the vehicle speed pulses
Large Black - (with fuse)	+12 volts accessory	Picks up power for the roof light. Connect to a switched 12-volt source. Should have power only when car is on.
White	Roof Light	Connect to roof light / Light comes on when meter is off
Brown	Tattle tale Light	Connect to tattle tale light / Light comes on when meter is on

### Using a Sendiv

Most cars built since the mid eighties are equipped with a factory installed Vehicle Speed Sensor from which mileage data is obtained. The Vehicle Speed Sensor is commonly referred to as the VSS; on some cars it is called an OSS (Output Shaft speed Sensor). Most VSS units are located on the transmission and generally have 2 wires.

The Pulsar Sendiv amplifies and divides the VSS pulses to enable your taximeter to read them.

### Connecting a Sendiv

Wire Color	Purpose	Connect To
Red	+ 12 volts	Switched 12volts source (Sendiv should be powered only when car is on)
Black	Ground	Connect this wire to Car's body
Green		This wire goes to the taximeter harness green wire.
Yellow		Connect this wire to one of the VSS' wire.

- Notes:
1. Most VSS unit has 2 wires, if one wire does not give a pulse, try the other wire.
  2. If you extend the yellow wire, try to keep it as short as possible to avoid interference.

### How to Adjust The W2

Remarks: The W2 has 2 adjustments: The pulse count, and sensitivity

#### 1. How to Adjust the pulse count:

The W2 has a white jumper that is used to adjust the number of pulses that are sent to the taximeter. Each move up of the white jumper, divides the pulses by 2. The number of pulses should be kept at 3000 or less (for km, 2500 or less).

#### 2. How to adjust the W2 sensitivity:

The W2 has a black jumper that is used to adjust its sensitivity. There are 4 positions for the black jumper: A, B, C, or no black jumper. Position A is the most sensitive setting.

After you have obtained pulses, the black jumper should be placed in the least sensitive position that permits normal operation.

- Notes:
1. If the black jumper is removed, leave it in the case by only inserting 1 leg.
  2. Should there be a pulse count when the car is stationery, there are 2 possibilities: the black jumper must be placed in a higher position (b, c, or no jumper), or you are connected to the wrong wire of the car.