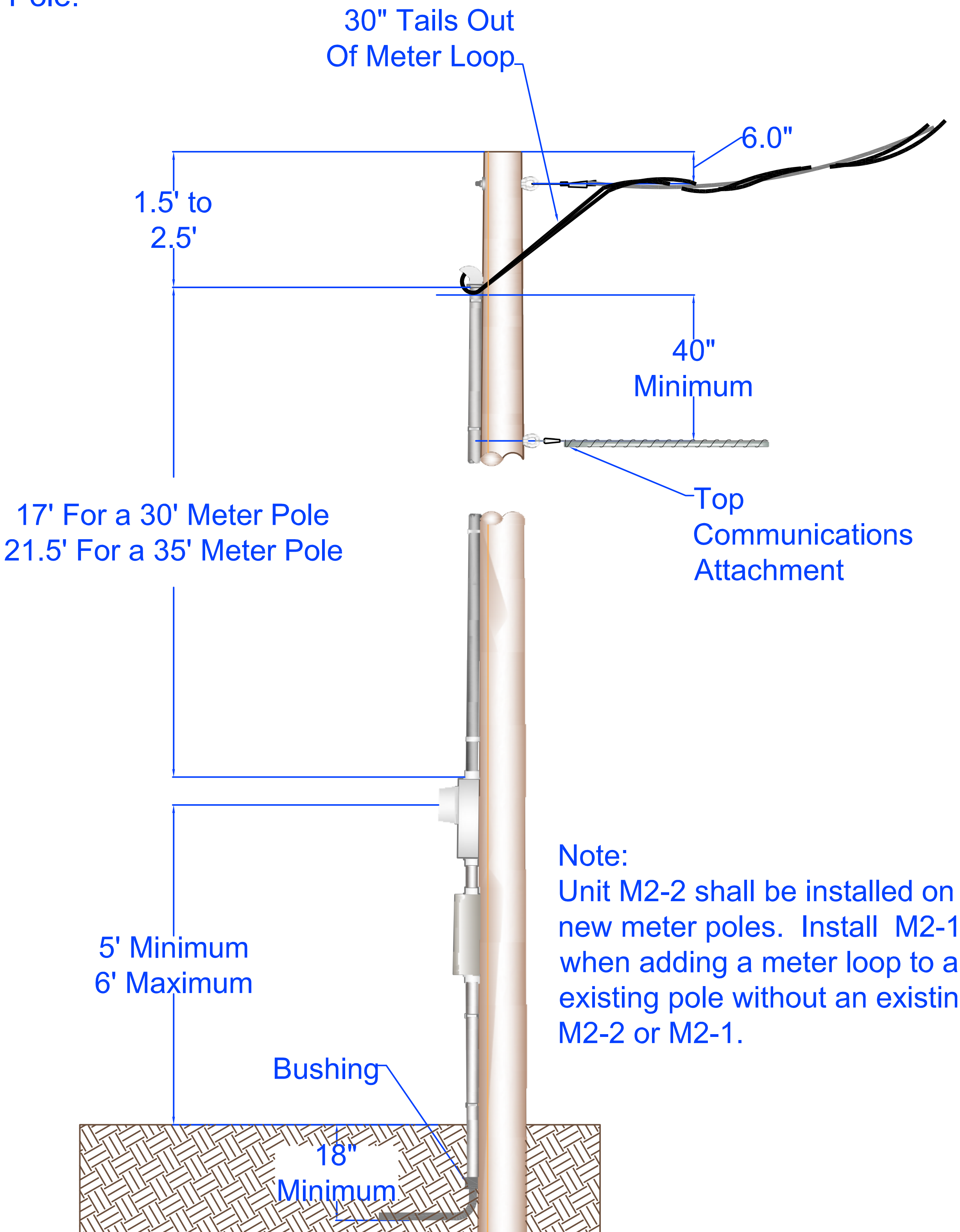
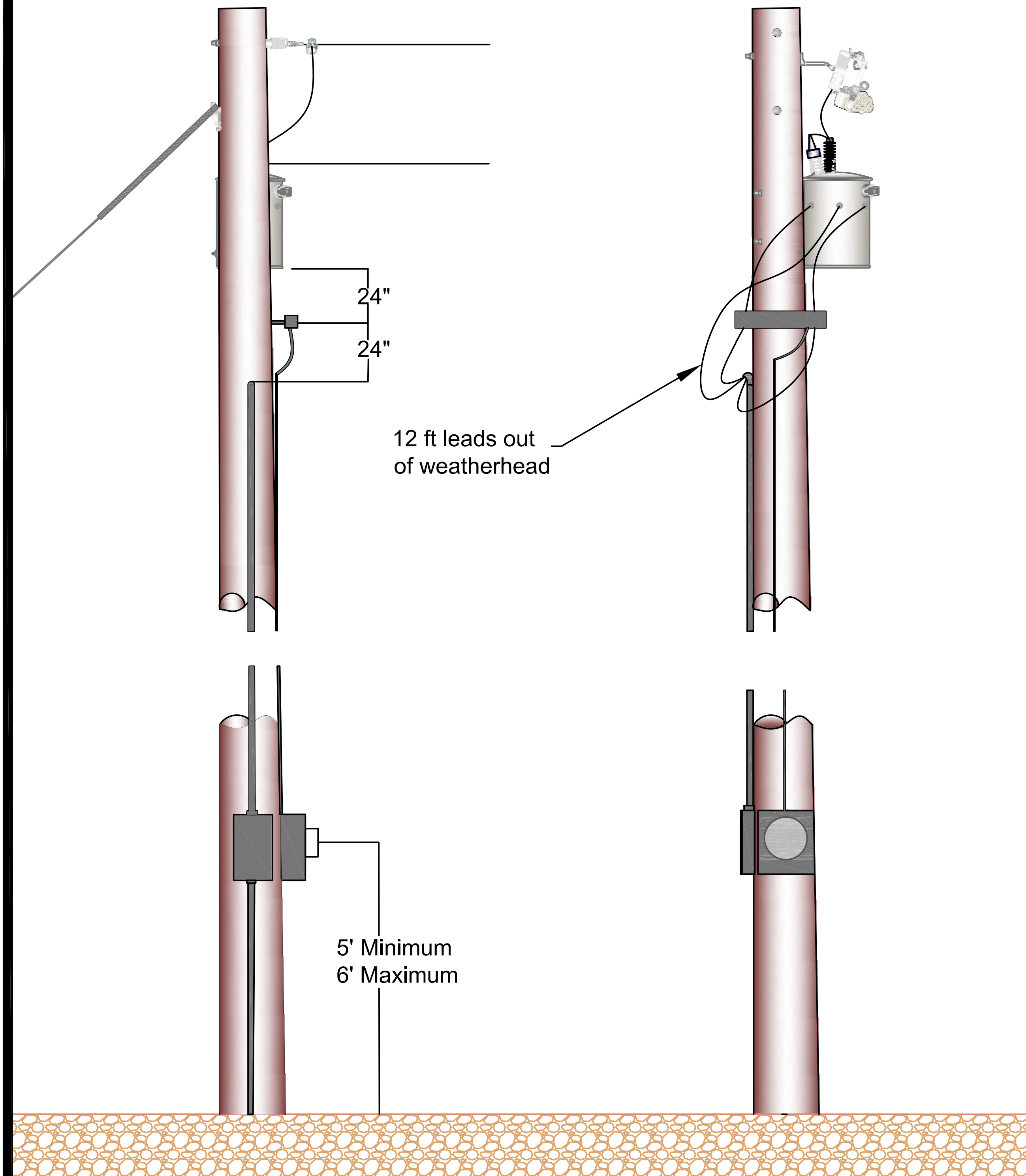
Allow proper ground clearance for communications lines when deciding on the height of the Meter Pole.



Note:
Unit M2-2 shall be installed on new meter poles. Install M2-1 when adding a meter loop to an existing pole without an existing M2-2 or M2-1.

PEDERNALES ELECTRIC COOPERATIVE, INC. CONSTRUCTION ASSEMBLY UNIT	Guide to Meter loop installation with Customer underground service.			
	drawn: REB	approved MJB	date: July 6, 2012	M8-10

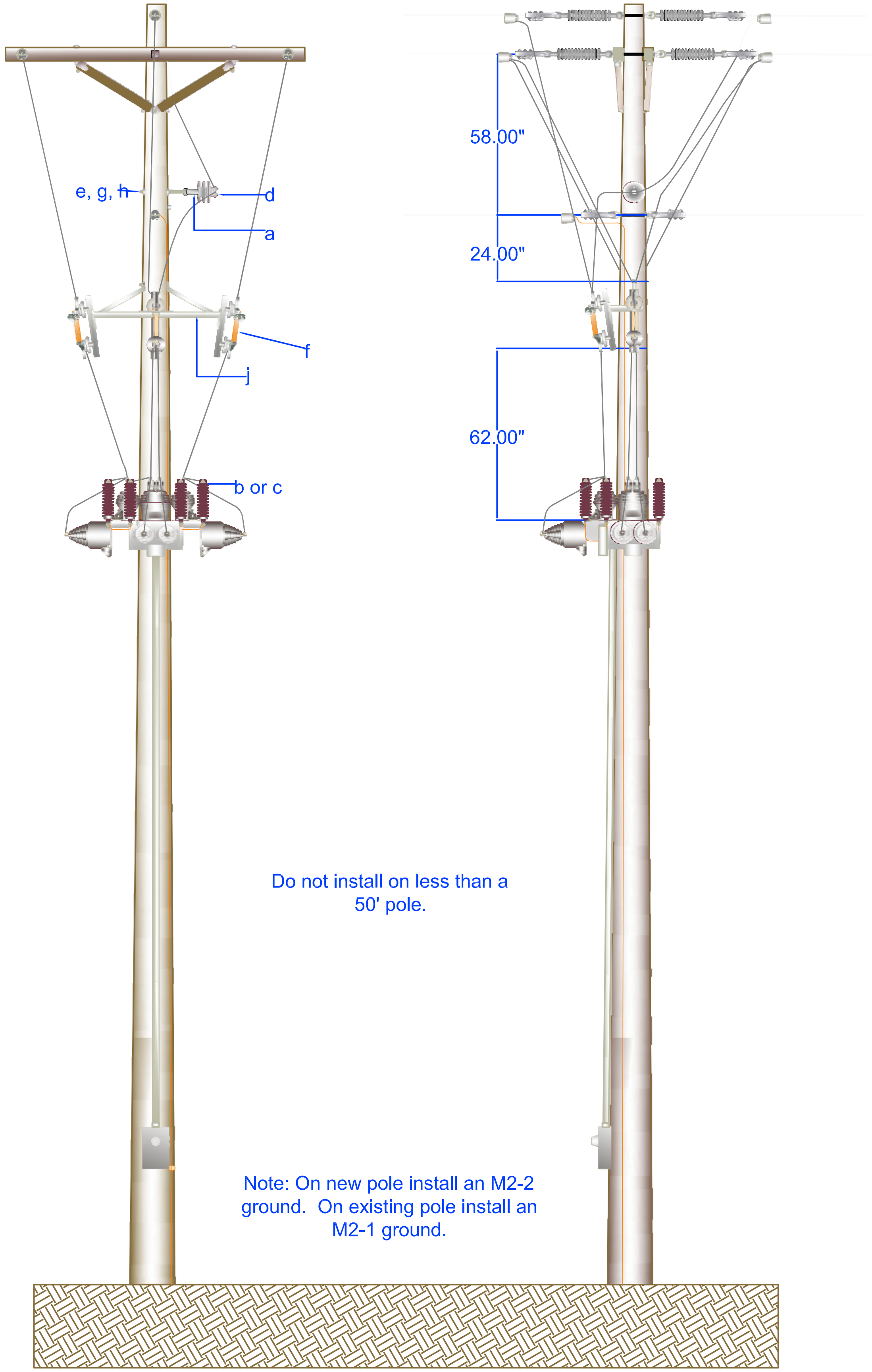


PEDERNALES ELECTRIC
COOPERATIVE, INC.

CT Metering

1 Phase CT Metering

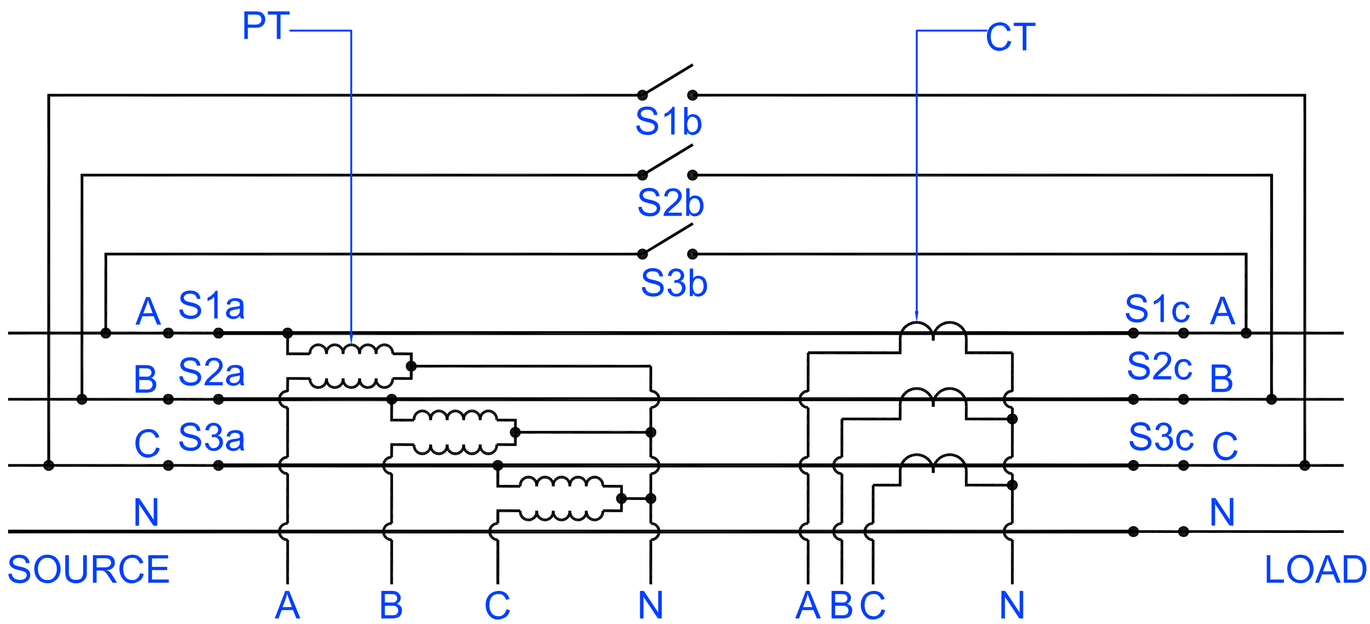
drawn:	approved	date:
REB	MJB	10/10/11



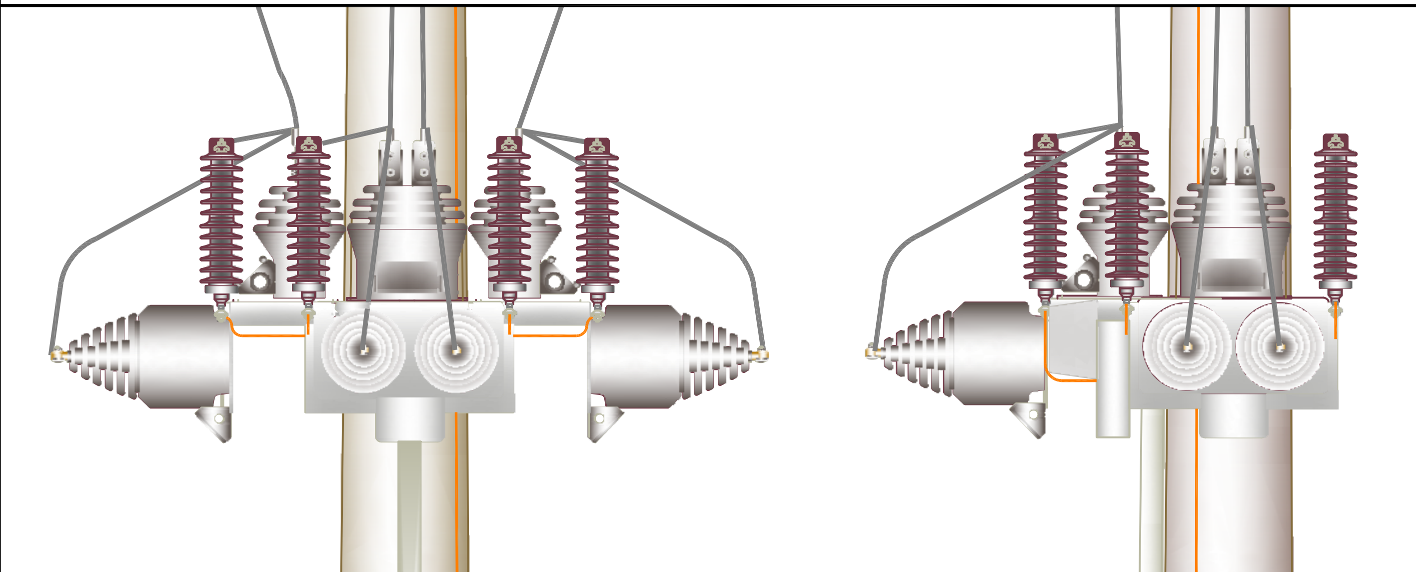
Do not install on less than a 50' pole.

Note: On new pole install an M2-2 ground. On existing pole install an M2-1 ground.

PEDERNALES ELECTRIC COOPERATIVE, INC. CONSTRUCTION ASSEMBLY UNIT	**7.2/12.5 kV or 14.4/24.9 kV Primary Metering with Regulator Bypass Switches and Steel Equipment Rack** Page 1 or 2			
	drawn: REB	approved MJB	date: July 6, 2012	**M8-16**



8 Conductor metering cable in conduit.
WIRING DIAGRAM



Item	Material Number	Item Quantity	Item Description
a	2000001	1	Adapter Insulator 1 3/8"
b	2000012	6	Arrester Dist 10 KV Polymer MOV
c	2000014	6	Arrester Dist 18 KV MOV
d	2000541	1	insulator Pin Type Cl 55-6
e	3000153	2	Locknut 5/8" MF
f	2000945	3	Switch Reg Bypass 25KV 400A
g	3000240	2	Washer Sq F 2 1/4
h	*	1	Bolt Dbl Arming 5/8"
j	2000149	1	Bracket Equipment Mount 3Ph Large

*Denotes "Grab Bag" item. Bolt length is dependent on pole class.

PEDERNALES ELECTRIC COOPERATIVE, INC.
CONSTRUCTION ASSEMBLY UNIT

7.2/12.5 kV or 14.4/24.9 kV
Primary Metering with Regulator Bypass Switches and Steel Equipment Rack
Page 2 of 2

drawn:	approved	date:	
REB	MJB	July 6, 2012	**M8-16**

WATTHOUR METERING

The electricity that PEC's members use is measured by watthour meters. A watt is the practical unit of active power which is defined as the rate at which energy is delivered to a circuit. A watt can also be explained as the product of volts x amps x power factor with power factor representing the cosine of the angle between a voltage and its respective current. One thousand watts equals one kilowatt. A watthour is the practical unit of electric energy which is expended in one hour when the average power during the hour is one watt. One thousand watts equals one kilowatt. One thousand watthours equals one kilowatthour.

Kwh & Kw Registers:

Electric meters can be described as being either solid state or electromechanical/inductive. The electromechanical or inductive meters are of a mechanical nature. The solid state meters do not have any mechanical components. The displays are usually either LCD or LED.

Electric meters have at least a kilowatthour register. Each disk rotation of a meter represents a specific quantity of watts. The watt value per disk revolution of each meter varies by meter form number, meter class, voltage rating and meter manufacture.

Some electromechanical and most solid state meters have a demand register. Most billing demand values are in terms of kilowatts or kw but kilovolts or kva is also used. The demand interval on most meters is usually a 15-minute interval. The kw demand registered is a peak quantity occurring at some 15-minute period since the last demand reset. For most solid state meters the demand calculation is arrived at by the following example: There are 50 kilowatthours registered in the most recent fifteen minute interval. 50 KWH/.25(fifteen minutes of an hour) = 200 KW. Demands on the electromechanical meters are mostly 15-minute intervals but there may be a few 30-minute intervals still in use. A very few are thermal demand registers. This method uses a bimetal piece in the demand register that reacts to heat created by current levels that in turn pushes a demand pointer.

Meter Nameplate:

As with any other piece of equipment, the nameplate on a meter is the most important piece of equipment. The most typical items on nameplate are as follows:

- Company Number - This is a utility specific number used for billing and inventory purposes. The meter section supplies the number range to be used to the meter manufacturer. This number is usually five or six digits. Merging with Kimble EC necessitated the adoption of the use of the serial numbers to serve as company numbers as well. This situation created company numbers of seven to ten digits.
- Serial Number - This number is specific to the meter manufacturer. There may be duplications of serial numbers between manufacturers.
- Form Number - This is an industry standard number by which a meter is designed, built and intended to be used with reference to service type and number of service wires.
- Kh - This is the watthour constant of a meter. It represents the value in terms of watts of one disk revolution.
- Manufacturer’s Name or Trademark

- Manufacturer's Type or Model - Ex.: GE's, I-70-S
- Class Designation - The continuous amp rating of the meter. Ex. Cl 100, Cl 200, Cl 320
- Volts - The voltage rating of the meter's potential coils, elements or sensors.
- Number of Wires - The number of service wires relating to the service type.
- TA - Test amp rating for testing and calibration purposes. Typically meters are tested at full load at the 100% TA rating and 10% TA for light load.

Electromechanical and Solid State Meters

Watthour meters are categorized as being either electromechanical or solid state. Both of those types of meters conform to the above mentioned features. Each are described in detail below.

Electromechanical or inductive meters are those we typically see in our form 2s residential meters. All of the working components of these meters are of a mechanical nature. They have disks that are rotated when both voltage and current are applied.

Kwh registers are usually five dial. The register can be either a cyclometer type or a pointer type. The cyclometer type looks like what you might see on the odometer of an automobile. The pointer type resembles a clock face. The pointer type register has approximately 25% of the gearing as that of a cyclometer register. This accounts for the fewer number of problems such as registers locking up.

Electromechanical meters are service and voltage specific. In other words, these meters are designed to be used only on service types associated with the form number and only at the rated voltage. Any misapplication will result in loss of registration. Misapplications of meters can result in injury. Both single phase and polyphase meters are available in the electromechanical version.

Solid state meters are those we currently see used on our three phase or polyphase meter applications. The most obvious feature of the solid state meter is that the register is usually an LCD type but some manufacturers have used LED displays. Their register displays are in a block type digital format. These meters allow for more diversity due to the autoranging potential sensors. This allows them to be used on either wye or delta services at voltage ranges from 120 to 480 volts. Again, misapplication of meters can result in injury.

Selfcontained or Transformer Rated Meters

Meters can also be categorized as being either selfcontained or transformer rated(also known as instrument rated, c.t. or multiplier meters). A self contained meter can be described as one having all of the metering components contained within the meter itself. The selfcontained meters will have the following characteristics:

- Meter form numbers are one any of the following:
    1. 1s
    2. 2s
    3. 12s
    4. 14s
    5. 15s
    6. 16s
- Meter class is one of the following:
    1. 100
    2. 200
    3. 320

Transformer rated meters are those requiring current transformers and in some cases potential or voltage transformers. These installations also require additional wiring to connect the current transformers and potential transformers if required, to the meter socket that is specific to that meter. Misapplication of meters will result in loss of registration and possible injury. Any installation or removal of an energized transformer rated meter should be done only by personnel from the Meter Section. Transformer rated meters have the following characteristics:

- Meter form numbers are any one of the following:
  1. 3s
  2. 4s
  3. 5s
  4. 6s
  5. 8s
  6. 9s
  7. 10s
  8. 35s
  9. 36s
  10. 45s
- Meter class is one of the following:
  1. 10
  2. 20

What Determines Selfcontained or Transformer Rated Metering

When an application is made for service, it is the district engineering group's responsibility to determine whether the service will be selfcontained metered or c.t. metered. This is a simple matter after the service voltage, service type and amperage have been determined. Transformer rated metering equipment will be required if either of the conditions are going to exist:

- Voltage - If service voltage of 480 volts or greater either phase to phase or phase to ground, the service will have to be c.t. metered.
- Amperage - If service amperage exceeds 320 amps, it will have to be c.t. metered.

It does not matter if the service is single phase or three phase.

Meter Form Numbers

Meter form numbers are identifying the meter to be constructed for a particular sevice type. A detailed explanation of meter form numbers and the more common applications we see here at PEC are as follows:

Selfcontained

Form Number	Meter Voltage	Service Type	Comments
2s	120	1p/2w 120	* This will be discussed later.
2s	240	1p/2w 240	* This will be discussed later.
2s	240	1p/3w,120/240	Typical single phase three wire service.
2s	480	1p/3w,240/480	This was used at Junction. Because of the 480 volts, they are being upgraded to c.t. metering.
12s	120,A/R	1p/3w,120/208	Three wire service from a 120/20 wye bank has to have this meter. A form

			2s meter results in approximately 15% to 25% loss of registration.
12s	240,A/R	3P/3W,240 delta	This service isn't common but does exist on our system.
12s	480,A/R	3p/3w,480 delta	This was used at Junction but is upgraded to c.t. metering.
14s	120	3p/4w,120/208 wye	This meter is replaced with the form 16s solid state meter.
15s	240	3p/4w,120/240 delta	This meter is replaced with a solid state 16s meter. High leg(208v) has to be located on the far right terminal of the socket to register correctly.
16s	120,A/R 240,A/R	3p/4w,120/208 wye 3p/4w,120/240 delta	This meter in the solid state version is interchangeable with the the forms 14s and 15s.

* The 2s meter can be used on the 1 phase/2 wire services of either 120 or 240 volts. Some preliminary steps have to be taken in order to register properly.

- The test link on the back of the meter has to be opened or removed.
- The bottom terminal of the test link has to connected to the service neutral in the meter socket.
- The service neutral is connected to it's normal terminal in the meter socket. The service's "line" wire is connected to the top left terminal of the meter socket. A jumper of equal wire size is connected between the bottom two terminals. The service "load" wire is connected to the top right terminal.

What is accomplished in this type of installation is adapting a 1 phase/3 wire meter to a 1 phase/2 wire service. Even though the form 2s meter is rated at 240 volts, it will register properly even at 120 volts. By opening the test link of the meter and grounding the bottom test link terminal, we are "grounding" the end of the potential element. In wiring the meter socket as described, we are routing or putting the "load" in series through the current coil of the meter. If we were to connect the service "load" wire to the lower left terminal and leave the top right and bottom right terminals empty of service wires, we would only have 50% registration. **It is important that these services are metered properly.**

Transformer Rated

Form Number	Meter Voltage	Service Type	Comments
3s	120	1p/2w,7200	Primary metered. Requires one 60:1 p.t. and one c.t.
3s	120	1p/2w,14400	Primary metered. Requires one 120:1 p.t. and one c.t.
3s	240	1p/3w,120/240	Single c.t. metered.No p.t.s.
4s	240	1p/3w,120/240	Normally used with two c.t.s and no p.t.s.
4s	240	1p/3w,240/480	This service common for some pumps and highway

			illumination. Two 2:1 p.t.s. and two c.t.s are required.
5s	120	3p/3w,480 delta	This meter used with two 4:1 p.t.s and two c.t.s.
5s	240	3p/4w,120/240 delta	This is an obsolete way metering this service. Two c.t.s and no p.t.s.
6s	120	3p/4w,120/208 wye	This meter was cheaper than the proper form 9s but suffered some inaccuracies. Three c.t.s and no p.t.s.
6s	120	3p/4w,277/480 wye	Same as above 6s but requires two 2.5:1 p.t.s and three c.t.s.
8s	240	3p/4w,120/240 delta	This meter is replaced with the form 9s solid meter. Requires three c.t.s, no p.t.s.
9s	120,A/R	3p/4w,120/208 wye	Three c.t.s and no p.t.s.
9s	120,A/R	3p/4w,277/480 wye	Requires three 2.5:1 p.t.s and three c.t.s.
9s	120,A/R	3p/4w,7200/12470 wye	Primary metered. Requires three 60:1 p.t.s and three c.t.s.
9s	120,A/R	3p/4w,14400/24900 wye	Primary metered. Requires three 120:1 p.t.s and three c.t.s.
35s/45s	A/R	1p/3w,120/240	Used with two c.t.s. No p.t.s.
35s/45s	A/R	1p/3w,240/480	Used with two c.t.s and two 2:1 p.t.s.
35s/45s	A/R	3p/3w,480 delta	Used with two c.t.s and two 2:1 or 4:1 p.t.s.
36s	A/R	3p/4w,Any wye	This is a solid state version of the form 6s meter.

Meter Sockets

Meter sockets like meters have to be selected for service types and service amperages. Overloading meter sockets and meters results in damage to both the meter and socket. Naturally it is necessary to understand the difference between service types and service voltages. For these same reasons it is important to be able to identify the difference between the application of a 4 terminal or a 7 terminal socket for example, as well as the difference between 200 and 320 amp sockets.

Lever bypass sockets with jaw clamping features have long been in use at PEC in the 320 amp 4 terminal socket. 200 amp, 7 terminal versions of these sockets are now being used. These bypass features are not to be used as a load break device. It is important to remember this. Misuse of this feature could result in injury.

Installation of meter sockets should be done so that the meter is sitting upright and the disk of an electromechanical meter is parallel to the ground. The greater the difference there is with the meter's disk being off parallel to the ground, the greater the chances are in registration loss due to the meter running slow. Never allow a meter to be installed upside down.

Always make sure that meter socket is properly grounded.

Four Terminal Sockets

This socket is used for 3 wire services. Typically this would be a 1 phase/3 wire, 120/240 volts service. Care should be taken to be sure that the line or source wires are connected to the top two terminals of the meter socket. The load wires are connected to the bottom two terminals. The neutral wires are connected to a common terminal in the socket in order to provide a solid continuation of the neutral. Under no circumstances ever allow the line or source wires to be connected on the bottom terminals. Even though a meter socket can be wired in reverse and the meter can be installed upside down and it will appear to register properly, it will not. An electromechanical meter is designed to run in an upright position. Any other position will affect registration by running slower.

Proper meter form number for this service is 2S.

Occasionally, we will have to meter 1 phase/3 wire,120/208 volt services connected to a 3 phase/4 wire,120/208 wye bank. These are commonly known as network services. These not only require care in meter selection which would properly be the form 12s meter, but also care is taken to notice that the meter itself is a five terminal meter. This fifth terminal has to connected to the third wire of the service in some method. Here the third service wire is the neutral. A fifth terminal kit can be obtained from the Meter Section. It consists of a terminal similar to the terminals in the socket and a length of #14 or #12 gauge wire. One end of the wire is connected to this terminal and the other end is connected to the neutral. Once these connections are made and the meter is installed, the meter will then operate and register properly. Care should be taken in selecting the proper form 12s meter with respect to the TWACS module. The Schlumberger Vectron meter/TWACS module should be rated for 120/208v.

Line service wires are connected at the top terminals. Load service wires are connected at the bottom terminals. The middle terminals are for the neutral wire of the network service.

Five Terminal Sockets

Five terminal sockets are basically a four terminal socket with a stationary fifth terminal at the nine o’clock position and the normal neutral connections are insulated from the meter socket housing. The neutral terminal bar has a removable ground strap that is used for the network services and removed for the delta services. This socket is intended for three wire services being either 120/208 network services or 240 volt three phase/three wire delta services.

Line service wires are connected at the top terminals. Load service wires are connected at the bottom terminals. The middle terminals are for either the neutral wire on the network service or the grounded phase on the delta service.

Proper meter form number for this service/socket application is the form 12S meter.

Seven Terminal Sockets

Typical amp ratings of these sockets are 100, 200 and 320 amps. The only service voltages used with these sockets will either be 3 phase/4 wire,120/208 wye or 3 phase/4 wire,120/240 delta. Any other three phase services are probably going to have to be c.t. metered. The most important thing to remember with the 3 phase/4 wire,120/240 delta service is that the high leg(208v) has to go to the far right terminals. If a seven terminal socket ever has to be repaired or replaced, be sure that voltage readings are taken and phase rotation is taken at some point past the meter socket. If this is done before the clearance is taken and verified after power is restored, you can prevent any damage to the customer's equipment.

Line service wires are connected at the top terminals. Load service wires are connected at the bottom terminals. The middle terminals are for either the neutral wire on the network service or the grounded phase on the delta service.

Always be sure the teaser wire is intact from the neutral bar to the second terminal from right on the lower set of four terminals.

Meter form numbers for these sockets will be either 14s,15s or 16s depending on the service type.

Six Terminal Sockets

These are c.t. rated sockets. Amp ratings of these sockets are typically 20 amps. They are provided and installed by the Meter Section. Some of these meter sockets are equipped with current auto-shunting devices and some are equipped with manually operated test switches. These meters and meter sockets should only be operated by properly qualified Meter Section personnel.

The meter form number for this socket is the form 4s meter. In some special cases, a form 3s meter can be used if the socket is wired accordingly.

Terminals are arranged like a four terminal socket with the fifth and sixth terminals each situated vertically and between the upper and lower terminals. The upper left terminal is A phase current(Red), upper right is B phase(Blue), middle left terminal is A phase voltage(Green), middle right terminal is B phase(Black), both lower terminals are neutral/current return(White).

Eight Terminal Sockets

These sockets are also transformer rated sockets. Like the 6 and 13 terminal sockets, these sockets are only rated for 20 amps. As with the four and thirteen terminal sockets, each is equipped with either a current auto-shunting device or test switches.

These meters should only be operated by properly qualified personnel of the Meter Section. The proper meter for this socket is either the 5s, 35s or 45s.

These meters and sockets are used on three wire services. They could be either single phase/three wire or three phase/three wire services.

The terminals are arranged in this socket with four across the upper side and four across the lower side. The upper top left terminal is A phase current(Red), second from left is A phase voltage(Green), upper second from the right terminal is B/C phase voltage(Black) upper right terminal is B/C current(Blue) and the bottom four terminals are potential/current return(White).

Thirteen Terminal Sockets

These sockets are also transformer rated sockets and are provided and installed by the Meter Section. Some of these meter sockets are equipped with current auto-shunting devices and some are equipped with manually operated test switches. These meters and meter sockets should only be operated by properly qualified Meter Section personnel. The meter form numbers this meter socket takes are the form 6s, 8s and 9s meters.

These meters and sockets are for three phase/four wire services, either wye or delta.

Current Transformers

Current transformers are used when service amperage exceeds the limitations or "Class" of the self contained meters. All c.t.s have nameplates. On these nameplates is some of the more pertinent information:

- Ratio - This is typically at some ratio to 5. Ex: 200:5. When an amperage of 200 passes through the primary side of the c.t., 5 amps will be measured at the secondary terminals of the c.t.
- Rating Factor - This typically ranges from 1,1.5,2,3 to 4. This rating factor allows the c.t. some versatility to measure peak as well as off peak loads accurately. For instance, if a 200:5 c.t. has a rating factor of 4, it could effectively measure up to 800 amps. Like any piece of measuring equipment equipment, c.t.s can be overloaded. If loads are added or removed from a c.t. metered location, the Meter Section should be immediatly notified to determine if the c.t.s need to be upgraded.
- Voltage Rating - This determines service voltage applications of the current transformers. Voltage ratings of c.t.s are commonly 600v for services up to 480v, 15kv for 7.2/12.5 kv services and 25kv for 14.4/24.9 kv services.

Current transformers have polarity markings similar to those found on a distribution transformer. The H1 marking on the c.t. is also identified with a white dot. The H2 terminal may be identified with a black dot or H2. The secondary terminals are identified by X1 and X2 markings.

When using a "window" type c.t., the service is run from the source through the H1 or white dot side. The current wire is connected to the X1 terminal and the return wire is connected to the X2 terminal.

A service wire run through a c.t. from the source through the H2 side with the current and return wires connected properly to the secondary terminals results in the current being 180 degrees out of phase to it's respective voltage. This in turn results in negative watts registered or reverse rotation of the disk in a meter. **It is very important to always be aware of the polarity of the c.t. at it's installation.**

A shorting device of some type is usually found on the secondary terminals of a c.t. This shorting device is used on a c.t. in order to short circuit current flow from the secondary terminals of the c.t. This would enable socket replacement, wiring replacement or repairs.

A major safety concern exists with c.t.s under load. Like a capacitor, a non-shorted c.t. can build up a voltage charge under load. If a c.t. circuit is opened, that is if a break or opening occurs in the current or return wire or a meter is pulled from a meter socket equipped with test switches that are not first shorted, voltage occurs at the opening point. In the case of a primary metered location, primary rated voltage could occur at the opening point. Under no circumstances shall a primary meter be removed by anyone other than a Meter Section qualified person.

Current transformers can also be "looped or cut down". This usually is necessary when a secondary voltage(below 600v) is going to be c.t. metered but the expected amperage is well below available c.t. ratios. The service wire can be run through a c.t. and then "looped" back through the c.t. Each time this service wire is "looped" through the c.t., the c.t. ratio is reduced by dividing the c.t. ratio by the number of loops. Example: If a 100:5 c.t. is "looped or cut" 2 times, the connected ratio becomes 50:5. If the 100:5 c.t. is "looped or cut" 4 times, the connected ratio becomes 25:5. Each time the same wire is "looped" through the c.t., the ratio is divided by that number of "loops". **It is important to know that when removing "loops" from or adding "loops" to a c.t., the billing multiplier and registration is affected.** Multipliers will be discussed later.

If any work is planned that may affect a c.t. metered location,always contact the Meter Section. This will allow time for the Meter Section to evaluate the metering equipment installed and determine if it needs to be upgraded.

If any work is done as a result of an outage that may affect a c.t.

metered location, always contact the Meter Section as soon as possible. This will allow the Meter Section the opportunity to inspect and verify the metering equipment is still in proper operation.

Potential or Voltage Transformers

Potential or voltage transformers are more commonly known as either p.t.s or v.t.s. A p.t. is required with service voltages of 480 volts or greater measured either phase to phase or phase to ground. A p.t. will be used at a ratio to provide a voltage of either 120v or 240v to the meter. Typical secondary p.t. ratios are at 2:1, 2.5:1 or 4:1. We are using 2:1 ratios with service voltages of 240 volts to ground to produce 120 volts and on the 480 delta services to reduce 480 volts to 240 volts. The 480 delta service also uses the 4:1 ratio to reduce 480 volts to 120 volts. The 2.5:1 ratio reduces the 277/480 volt 277 to ground voltage to about 110 volts. These p.t.s are of a very low VA rating and are not intended for any other applications than metering. It is easy to damage or destroy a p.t. by overloading or shorting the secondary windings of a "Low Voltage" p.t. Overloading or shorting the secondary windings of a "High Voltage" p.t. results in a much more severe failure. **Never connect any type of load other than metering related equipment to the secondary side of any metering p.t.**

These potential transformers have polarity markings identifying H1, H2, X1 and X2 terminals. As with c.t.s, it is important to pay close attention to the polarity markings in order to insure proper registration.

Meter Multipliers

With the exception of a few meters, all meters have multipliers of "1". The multplier found on a meter is determined by the ratio of the c.t. multiplied by the ratio of a p.t. if present. In other words, as the current and voltage is reduced by the ratios of the c.t.s and p.t.s to the meter, the register readings have to be multiplied by these same ratios to accurately determine usage. For instance, if a location had a c.t. ratio of 200:5 and no p.t.s, the multiplier would be determined as follows:

- The c.t. ratio of 200:5 is reduced to 40:1.
- If there are no p.t.s used, the p.t. ratio is 1:1.
- We then multiply the c.t. ratio of 40:1 x p.t ratio of 1:1 and the multiplier is 40.
- If we had a location with c.t. ratios of 400:5 and p.t. ratios of 2.5:1, the multiplier becomes c.t. ratio of 80:1 x p.t. ratio of 2.5:1 equals 200.

Multipliers are not randomly applied to a location or meter. They are determined by c.t. and p.t. ratios. The exception to this rule is a self-contained meter that has a four dial register ratio of 10 times it's "normal"ratio. To compensate for this abnormality, the meter with this register ratio will always have a multiplier of 10 until the register is replaced with the proper ratio.

C.T.Metering Requests

"C.T. Metering Request" is provided on PEC's AMS computer network system. These forms provide the Meter Section with important data used to prepare for the upcoming installation. It is very important that the district engineering provide as accurate information as possible.

C.T.Metering Installations

C.t. metering installations are usually one of three types. They are listed and described below:

- Overhead - A preassembled package is installed either on the transformer pole or a service pole. This package is installed by the Meter Section personnel. It is mounted approximately 2 feet below the transformer/s. Tails of 12 feet are needed out of the weatherhead if the customer has a riser installed on this pole. The customer should have the top of his riser to not extend up any further than 4 feet below the bottom of the transformer tank. Current and voltage wires are run through conduit down the pole to a meter socket where the wires connected are connected to the appropriate terminals.
- Underground - Current transformers are installed on the secondary bushings of the transformer. Current and voltage wires are run through conduit to a pedestal where a meter socket is installed.
- C.T. or Current Transformer Enclosure - This installation requires an approved enclosure to be installed usually on the consumer's wall. The c.t.s are installed in the enclosure and the service wire is run through the c.t.s. The meter socket is mounted on the wall next to this enclosure. Specifications for this installation can be obtained from AMS.
  This application is necessary when there is more than one meter point being served from a urd transformer. It also applies to any overhead service with respect to reducing congestion on a pole.
- The secondary wiring size on the c.t. circuits is #12 copper. The colors are as follows:
  Red: A phase
  Blue: B phase
  Yellow: C phase
  White: Current return
- The primary and secondary wiring on the p.t.s rated up to 600v is as follows:
  Green: A phase
  Black: B phase
  Brown: C phase

Verification of C.T. Metered Locations

Verification of a c.t. metered location is accomplished by the following means:

- The meter form number is verified as to the service type and voltage.
- The multiplier is verified by visual inspection of connected c.t. and p.t. ratios.
- Phase angle, phase voltage and current readings are obtained for each voltage and current to produce a vector analysis of the metered location.

FYI

- Time Load Check – Method of calculating watts from disk rotation:
  1. Clock disk rotation with stop watch.
  2. Determine Kh of meter from meter nameplate.
  3. Use formula: ((3600(# of seconds in an hour)x meter Kh x number of disk revolutions timed)/ # of seconds of time period) x multiplier = watts, watts/ 1000 = Kw.
  4. Ex. If disk rotation was timed at 3.6 seconds for one disk revolution, meter Kh = 7.2, what is the watt total and Kw total? 3600 seconds x 7.2 Kh x 1 disk revolution/ 3.6 seconds timed x 1 = 7200 watts or 7200/1000 = 7.2 Kw.

- Demand reset – The demand register has to be zeroed each time the meter changes account or immediately following a billing reading of the Kwh and Kw registers. This zero reset can be accomplished with a TWACS meter remotely through the TWACS system or on a solid state meter at the location by removing the seal on the demand reset device, unlatching the reset mechanism and push in. An electromechanical meter demand reset is similar. This reset only affects the Kw register, not the Kwh register.