|--|

CODES, SYMBOLS									
DRAWING NUMBER	SHT.			DRAWING TITL	E		DWG REV.	BOM REV.	
A-02-01	1	CODE FOR LIN		ON			0	-	
A-02-01	2	CODE FOR LIN	ODE FOR LINE IDENTIFICATION						
A-02-01	3	CODE FOR LIN	ODE FOR LINE IDENTIFICATION						
A-02-01	4	CODE FOR LIN	DE FOR LINE IDENTIFICATION						
A-02-01	5	CODE FOR LIN	DDE FOR LINE IDENTIFICATION 0						
A-02-01	6	CODE FOR LIN	DDE FOR LINE IDENTIFICATION 0						
A-02-01	7	CODE FOR LIN	ODE FOR LINE IDENTIFICATION A						
A-02-01	8	CODE FOR LIN	ODE FOR LINE IDENTIFICATION A						
A-02-02	1	SYMBOLS					Α	-	
A-02-02	2	SYMBOLS					В	-	
A-02-02	3	SYMBOLS					В	-	
A-02-02	4	SYMBOLS					В	-	
A-02-03	1	METRIC CONVE	ERSION				0	-	
A-02-03	2	METRIC CONVE	ERSION				0	-	
A-02-04	1	MISCELLANEO	US ABBREVIAT	IONS			0	-	
		Sa	sk <b>Power</b>		ON STANDARDS	2			
	A	PPROVAL	DESIGN CHK	DRN. ARU		J			
		MOEN	A. UHREN	CHKD.		INDEX			
				2016-10-20					
	D	ATE OF ISSUE:	2016/11/08	DRAWING NO:	A-02-INDEX	SHEET 1 OF	<b>1</b> R	EV. <b>F</b>	

## **OVERHEAD PRIMARY LINE IDENTIFICATION**

OVERHEAD PRIMARY LINES ARE DESCRIBED USING 9 BLOCKS. THESE BLOCKS ARE EXPLAINED BELOW.



#### **BLOCK NO.1**

INDICATES THE POSITION OF THE GROUP OF PHASES. OMITTED IF DESCRIBING SINGLE PHASE CIRCUITS AND THE TOP CIRCUIT ON THE STRUCTURE FOR MULTIPLE CIRCUIT LINES.

#### BLOCK NO. 2

INDICATES THE NUMBER OF PHASES IN THE GROUP. OMITTED IF DESCRIBING SINGLE PHASE CIRCUITS.

#### **BLOCK NO. 3**

INDICATES THE PRESENCE OF NEUTRAL/SHIELD WIRES IN THE GROUP. OMITTED IF NO NEUTRAL/SHIELD WIRE PRESENT.

### BLOCK NO. 4

INDICATES THE CONSTRUCTION CODE LETTER.

#### BLOCK NO. 5

INDICATES THE PHASE MULTIPLIER GIVING THE NUMBER OF PHASES IN THE GROUP, FOLLOWED BY AN 'x'. OMITTED FOR SINGLE PHASE CIRCUITS, OR IF ALL PHASES ARE IDENTICAL.

### BLOCK NO. 6

INDICATES THE NUMBER OF CONDUCTORS PER PHASE IN THE GROUP. OMITTED IF ONLY ONE CONDUCTOR PER PHASE.

#### **BLOCK NO. 7**

INDICATES THE CONDUCTOR SIZE.

### BLOCK NO. 8

INDICATES THE OPERATING VOLTAGE.

### BLOCK NO. 9

INDICATES THE INSULATED VOLTAGE. OMITTED IF INSULATED VOLTAGE IS SAME AS OPERATING VOLTAGE.

Sask <b>Power</b> - DISTRIBUTION STANDARDS						
DRN.	DESIGN CHK.	VAL	0005 500			
CHKD.					CODE FOR	אר
DATE	DATE	DATE				
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## APPLICATION OF LINE IDENTIFICATION CODE FOR OVERHEAD PRIMARY LINES

BLOCK NUMBER	2	4	7	8
DESCRIPTION	NUMBER OF PHASES.	TYPE OF CONSTRUCTION.	GAUGE NO. AND KIND OF CONDUCTOR OR CODE NAME IN THE CASE OF ACSR AND ALUMINUM.	VOLTAGE, IN kV, NORMALLY LINE. IF SINGLE PHASE Y, TO GROUND.
EXAMPLE	3	D	RAVEN	25
EXPLANATION OF EXAMPLE	3 PHASE WIRES	DELTA CONSTRUCTION TYPE	1/0 ALUMINUM CONDUCTOR, STEEL REINFORCED	25 kV, LINE TO LINE

3D - RAVEN - 25

OTHER EXAMPLES:

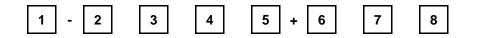
V – 6HICON – 14.4	<ul> <li>SINGLE PHASE #6 HICON, VERTICAL CONSTRUCTION, 14.4 kV LINE TO GROUND.</li> </ul>
3X – SPARROW – 25	= 3 PHASE SPARROW (#2 ACSR), ALL PHASE WIRES ON CROSSARM, 25 kV, LINE TO LINE.

3D – 2xRAVEN, PIGEON – 25 = 3 PHASE, TWO PHASES RAVEN (1/0 ACSR), ON PHASE PIGEON (3/0 ACSR), 25 kV, LINE TO LINE.

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## **OVERHEAD SECONDARY LINE IDENTIFICATION**

OVERHEAD SECONDARY LINES ARE DESCRIBED USING 8 BLOCKS. THESE BLOCKS ARE EXPLAINED BELOW.



### **BLOCK NO.1**

INDICATES IF THE CIRCUIT TYPE IS STREET LIGHT, NEUTRAL OR SECONDARY. OMITTED IF CIRCUIT TYPE IS SECONDARY.

### **BLOCK NO. 2**

INDICATES THE CONSTRUCTION CODE LETTER. OMITTED IF CONSTRUCTION CODE IS 1R, NB, QX, DX, OR TX.

### **BLOCK NO. 3**

**INDICATES THE NUMBER OF RUNS ON CONDUCTORS PER PHASE. OMITTED IF RUNS IS** '1'.

### **BLOCK NO. 4**

INDICATES THE NUMBER OF PHASES IN THE GROUP, FOLLOWED BY AN 'x'. OMITTED IF CIRCUIT TYPE IS NEUTRAL, SINGLE PHASE OR CONSTRUCTION STYLE IS QX, DX OR TX.

## BLOCK NO. 5

INDICATES THE PHASE CONDUCTOR SIZE.

### **BLOCK NO. 6**

INDICATES THE NEUTRAL CONDUCTOR SIZE. OMITTED IF CONSTRUCTION CODE IS QX, DX, OR TX.

### BLOCK NO. 7

INDICATES CONSTRUCTION STYLE FOR TYPES QX, DX, OR TX. OMITTED FOR ALL OTHER CONSTRUCTION STYLES.

### **BLOCK NO. 8**

INDICATES THE SECONDARY OPERATING VOLTAGE.

### **BLOCK NO. 9**

INDICATES THE INSULATED VOLTAGE. OMITTED IF INSULATED VOLTAGE IS SAME AS OPERATING VOLTAGE.

Sask <b>Power</b> - DISTRIBUTION STANDARDS						
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CHKD.					CODE FOR	אר
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## APPLICATION OF LINE IDENTIFICATION CODE FOR OVERHEAD SECONDARY LINES

BLOCK NUMBER	3	5	8
DESCRIPTION	NUMBER OF RUNS.	GAUGE NO. OF CONDUCTOR.	CONSTRUCTION STYLE
EXAMPLE	2x	1/0	QX
EXPLANATION OF EXAMPLE	2 RUNS OF 3 PHASE ON SINGLE PIN RACK	1/0 PHASE CONDUCTOR	QUADRAPLEX CONSTRUCTION

## 2x(1/0) QX

### **OTHER EXAMPLES:**

- N 1/0 = 1/0 SECONDARY NEUTRAL
- #2 TX 480 = #2 TRIPLEX SECONDARY, 480 V.
- 3R2x2/0 + 2/0 = SECONDARY OF TWO 2/0 AND A 2/0 NEUTRAL ON A 3 PIN RACK.
- X3xRAVEN = 3 PHASE RAVEN ON A CROSSARM.
- ST 1/0 QX = 1/0 QUADRAPLEX FOR STREET LIGHT CONTROL CIRCUIT.

Sask <b>Power -</b> DISTRIBUTION STANDARDS						
DRN.	DESIGN CHK.	APPROVAL				
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# **CONSTRUCTION CODE LETTER DEFINITIONS**

v	-	INDICATES VERT								
x	-	INDICATES CROS CROSSARM	NDICATES CROSSARM CONSTRUCTION WILL ALL PHASE WIRES THE CROSSARM							
XS	-	SAME AS 'X', ONL	SAME AS 'X', ONLY ON STEEL POLE.							
D	-		ELTA, INDICATES WOOD CROSSARM CONSTRUCTION WITH THE OUTSIDE VIRES ON THE CROSSARM AND THE CENTER WIRE ON A SKY PIN							
Α	-	INDICATES ALLE	NDICATES ALLEY ARM CONSTRUCTION							
1R, NE	3 -	UNIMOUNT.	IDICATES SINGLE WIRE CONSTRUCTION OF A ONE PIN RACK OR NIMOUNT. OSTLY URBAN USAGE							
UG	-	LINE IS UNDERGE	ROUND							
н	-	H-FRAME STRUC	TURE C	ONSTRUCTION	Į					
HS	-	H-FRAME (HIGH S	TRUNG	S) STRUCTURE	CONSTRUC	TION				
т	-	TOWER STEEL LA	ATTICE	STRUCTURE C		ΓΙΟΝ				
w	-	WISHBONE STRU	CTURE	CONSTRUCTIO	N					
G	-	GULFPORT STRU	CTURE	(2 POLE WOOL	) CONSTR	UCTION				
Y	-	Y STRUCTURE CO	ONSTRU	JCTION	-					
S	-	INDICATES STEE	L TRI-A	RM CONSTRUC	TION					
\$	-	HAS BEEN ADDE	INDICATES MODIFIED STEEL TRI-ARM CONSTRUCTION, WHERE A CROSSARM HAS BEEN ADDED AND THE TWO OUTSIDE WIRES FASTENED TO IT, THE CENTER WIRE REMAINING ON THE TOP TRI-ARM BRACKET							
SO	-	INDICATES STAN	D OFF I	NSULATOR CO	NSTRUCTIO	ON				
LA	-	INDICATES LAMIN		ARM CONSTRU	CTION					
SC	-	SIDE CROSSARM	SIDE CROSSARM, USED FOR URBAN SECONDARY							
		SaskP	ower	- DISTRIBUT	ION STAN	DARDS				
DRN.	DE	SIGN CHK.	APPRC	DVAL		CODE FOR				
CHKD.		<b>-</b> -	D 4 7 -			LINE IDENTIFICATI	ON			
			DATE		A 02 04					
DATE OF ISSU		JU1/U4/10		DRAWING NO:	A-UZ-U I	SHEET 5 OF 8	REV. <b>0</b>			

# AUXILIARY PRIMARY SYMBOLS

- U FOR UNDER, WHEN PLACED AHEAD OF ALL OTHER SYMBOLS IN A DESIGNATION INDICATES THAT THE CIRCUIT IS STRUNG UNDER ANOTHER CIRCUIT ON THE SAME POLE.
- R FOR RIGHT, IN CONJUNCTION WITH DOUBLE CIRCUITS INDICATES THE RIGHT-HAND CIRCUIT WHEN LOOKING DOWN THE LINE WITH THE BACK TO THE NORMAL SOURCE OF SUPPLY.
- L FOR LEFT, AS 'R' ABOVE, BUT REFERS TO LEFT HAND CIRCUIT.

## **CONDUCTOR DESCRIPTION ABBREVIATIONS**

- HICON HICON H.S.C. 130 3 STRAND STEEL
- (W)HICON HICON "WIRE WRAPPED'
- CU SOLID COPPER
- STR. CU STRANDED COPPER
- CW COPPERWELD OR COPPERWELD COPPER, DEPENDING ON GAUGE NO.
- ACSR ALUMINUM CONDUCTOR STEEL REINFORCED
- ACSR-SB SMOOTH BODY ACSR
- CCSR COPPER COATED STEEL REINFORCED
- ALW ALLUMOWELD
- AL ALL ALUMINUM
- DX DUPLEX SECONDARY CONDUCTOR
- TX TRIPLEX SECONDARY CONDUCTOR
- QX QUADRUPLEX SECONDARY CONDUCTOR

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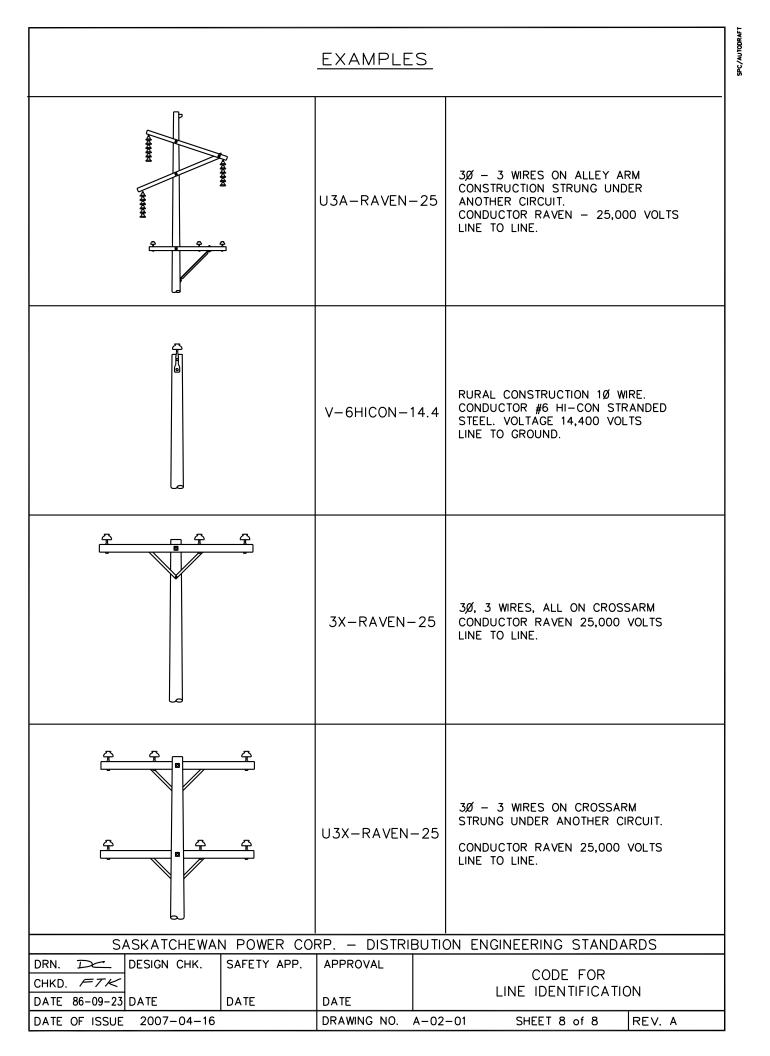
# KEY TO LINE IDENTIFICATION

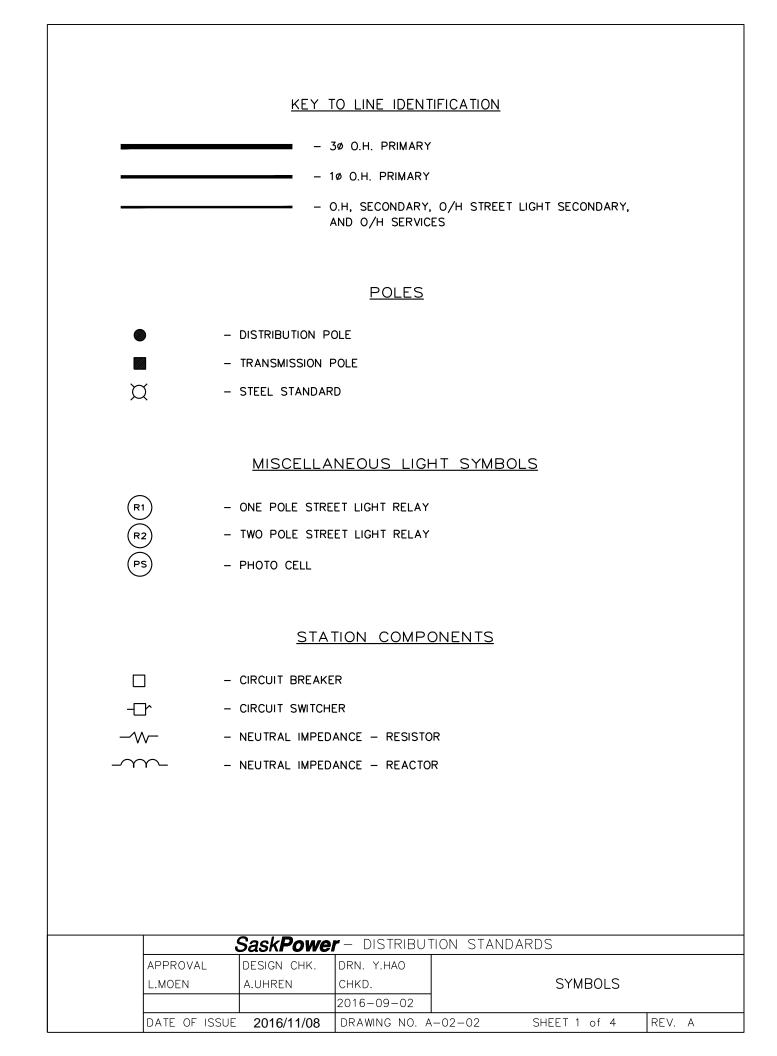
	- O/H PRIMARY - LL=>72KV,
	- O/H PRIMARY - LL=25KV, > 1 PHASE
	- O/H PRIMARY - LG=14.4KV, 1 PHASE
	– O/H SECONDARY
——FO———	- O/H FIBRE OPTICS
	- O/H STREET LIGHT

# CODE NAMES FOR ACSR AND ALUMINUM CONDUCTORS

HERRING PICKEREL SPARROW ROBIN	_ _ _	#6 ACSR-SB TYPE 200% #2 ACSR-SB TYPE 200% #2 ACSR #1 ACSR
RAVEN		1/0 ACSR
		2/0 ACSR
		3/0 ACSR
PENGUIN		4/0 ACSR
BRAHMA		203.2 KCMIL 16/19 ACSR
		266.8 KCMIL 26/7 ACSR
LINNET		336.4 KCMIL 26/7 ACSR
PELICAN		477 KCMIL 18/1 ACSR
HAWK	—	477 KCMIL 26/7 ACSR
GROSBEAK	. —	636 KCMIL 26/7 ACSR
DRAKE	—	795 KCMIL 26/7 ACSR
CURLEW	_	1033.5 KCMIL 54/7 ACSR
IRIS	_	#2 AL
ASTER		2/0 AL
PHLOX		3/0 AL
OXLIP		4/0 AL
DAISY		266.8 KCMIL AL
TULIP		336.4 KCMIL AL
COSMOS		477 KCMIL AL

SaskPower - DISTRIBUTION STANDARDS								
APPROVAL DESIGN CHK. DRN. DC								
		СНКД. <i>ГЕТК</i>	CODE	FOR LINE	IDENTIF	ICATION		
		86-09-23						
DATE OF ISSUE	2010-04-21	DRAWING NO.	A-02-01	SHEET 7	of 8	REV. A		





### METERING POINTS

- METERING POINT (COMMERCIAL & RESIDENTIAL)
  - METERING POINT (PRIMARY)

#### STREET LIGHTS

- ALL STREET LIGHTS USE THE SAME SYMBOL

## SYSTEM PROTECTION DEVICES

#### RECLOSER



\_

-	INDICATE	TYPE	IN	TOP	HALF	OF	CIRCLE	WITH	RATING,	(AMPS),
	IN BOTTO	M HAL	_F							

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- ARROW INDICATES DIRECTION OF FEED - GIS SYMBOLS DON'T SHOW TYPE/SIZE OR AN ARROW ANYMORE THIS IS JUST KEPT IN THE CSM FOR CLARIFICATION ON SOME DRAWING

#### **EXAMPLES**



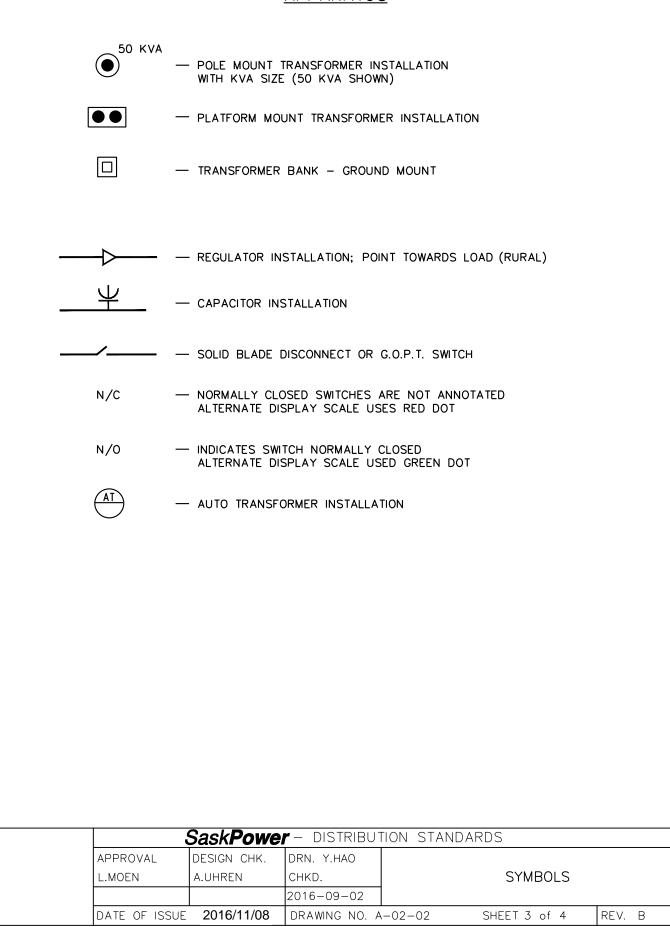
Ē) — —	R.V.E.	WITH	280	AMP
<u>v                                    </u>	PHASE	TRIP		

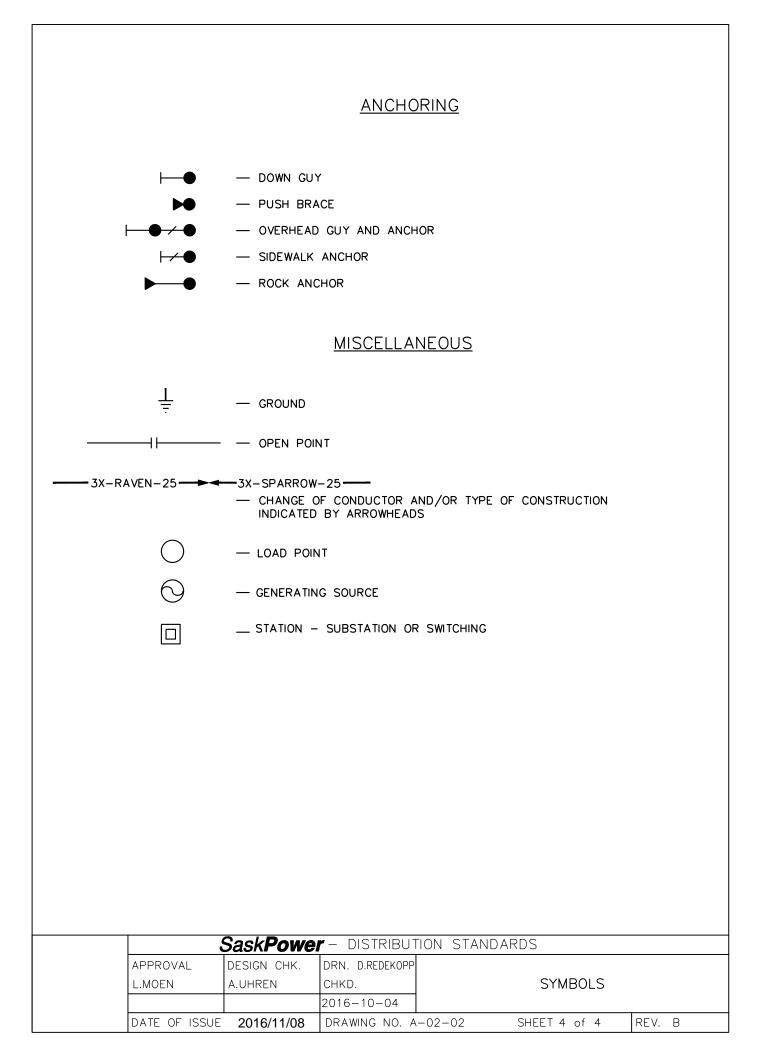
**FUSES** 

$\langle 12 \rangle$	—	TYPE "T" OR TYPE "X" FUSE LINK; 12 AMP FUSE INDICATED	
(12)	_	TYPE "T" OR TYPE "X" FUSE LINK HEAVY; 12 AMP FUSE INDICATED	
$\langle s \rangle$	_	CUTOUT WITH SOLID FUSE LINK	FUSES AT ALTERNATE
10	—	TYPE "N" FUSE LINK; 10 AMP FUSE INDICATED	DISPLAY SCALES
10	_	TYPE "N" FUSE LINK HEAVY; 10 AMP FUSE INDICATED	
$\mathcal{O}$		FUSE AT CONNECTIVITY SCALE	

	Sask <b>Powe</b>	r – Distribut	TION STA	NDARDS	
APPROVAL	DESIGN CHK.	DRN. D.REDEKOPP			
L.MOEN	A.UHREN	CHKD.		SYMBOLS	
		2016-10-04			
DATE OF ISSUE	2016/11/08	DRAWING NO. A	-02-02	SHEET 2 of 4	REV. B

## **APPARATUS**





## LENGTH

SPC/AUTODRAFT

FROM IMPERIAL25.4 x INCHES = MILLIMETRESTO METRIC0.305 x FEET = METRES1.61 x MILES = KILOMETRES

FROM METRIC	$0.0394 \times MILLIMETRES = INCHES$
TO IMPERIAL	$3.281 \times METRES = FEET$
	$0.621 \times \text{KILOMETRES} = \text{MILES}$

# AREA

FROM IMPERIAL	$645.2 \times SQUARE INCHES = SQUARE MILLIMETRES$
TO METRIC	0.093 x SQUARE FEET = SQUARE METRES
	0.836 x SQUARE YARDS = SQUARE METRES
	2.59 x SQUARE MILES = SQUARE KILOMETRES
	$0.405 \times ACRES = HECTARES$

FROM METRIC	$0.00155 \times SQUARE MILLIMETRES = SQUARE INCHES$
TO IMPERIAL	10.75 x SQUARE METRES = SQUARE FEET
	1.196 x SQUARE METRES = SQUARE YARDS
	0.386 x SQUARE KILOMETRES = SQUARE MILES
	$2.47 \times \text{HECTARES} = \text{ACRES}$

## VOLUME

FROM IMPERIAL TO METRIC 16387 × CUBIC INCHES = CUBIC MILLIMETRES 16.387 × CUBIC INCHES = CUBIC CENTIMETRES 0.0283 × CUBIC FEET = CUBIC METRES 0.765 × CUBIC YARDS = CUBIC METRES 4.546 × GALLONS = LITRES								
	FROM METRIC TO IMPERIAL0.000061 × CUBIC MILLIMETRES = CUBIC INCHES 0.061 × CUBIC CENTIMETRES = CUBIC INCHES 35.33 × CUBIC METRES = CUBIC FEET 1.307 × CUBIC METRES = CUBIC YARDS 0.22 × LITRES = GALLONS							
	S	ASKATCHEWA	N POWER COF	RP. – DISTRI	BUTION E	NGINEERING STANDA	RDS	
DRN.		DESIGN CHK.	SAFETY APP.	APPROVAL				
CHKD	. FTK					METRIC CONVERSION	N	
DATE	86-10-22	DATE	DATE	DATE				
DATE	OF ISSUE	87-02-01		DRAWING NO.	A-02-03	SHEET 1 of 2	REV.	0

MASS

FROM IMPERIAL  $454 \times POUNDS = GRAMS$ 0.454 x POUNDS = KILOGRAMS TO METRIC  $0.907 \times TONS = TONNES$ FROM METRIC  $0.0022 \times GRAMS = POUNDS$ 2.20 × KILOGRAMS = POUNDS TO IMPERIAL  $1.10 \times \text{TONNE} = \text{TONS}$ FORCE 4.448 x POUNDS FORCE = NEWTONS FROM IMPERIAL TO METRIC FROM METRIC  $0.225 \times NEWTONS = POUNDS FORCE$ TO IMPERIAL NOTE: FORCE (WEIGHT) = MASS x ACCELERATION (DUE TO GRAVITY) N = kg x m/s<sup>2</sup> OR lbf = lb x ft/s<sup>2</sup> GRAVITATIONAL ACCELERATION =  $9.81 \text{ m/s}^2$  OR  $32.2 \text{ ft/s}^2$ VELOCITY FROM IMPERIAL  $0.305 \times FEET PER SECOND = METRES PER SECOND$ TO METRIC 1.61 x MILES PER HOUR = KILOMETRES PER HOUR FROM METRIC 3.28 X METRES PER SECOND = FEET PER SECOND TO IMPERIAL 0.621 x KILOMETRES PER HOUR = MILES PER HOUR PRESSURE FROM IMPERIAL 6.895 x POUNDS FORCE PER SQUARE INCH = KILOPASCALS TO METRIC FROM METRIC 0.145 x KILOPASCALS = POUNDS FORCE PER SQUARE INCH TO IMPERIAL TEMPERATURE FROM IMPERIAL  $(^{\circ}F-32) \times 0.556 = ^{\circ}C$  (DEGREE CELSIUS) TO METRIC FROM METRIC  $(\circ C \times 1.8) + 32 = \circ F$  (DEGREE FAHRENHEIT) TO IMPERIAL SASKATCHEWAN POWER CORP. - DISTRIBUTION ENGINEERING STANDARDS DRN. DC DESIGN CHK. SAFETY APP. APPROVAL CHKD. FTK METRIC CONVERSION DATE 86-10-23 DATE DATE DATE

DRAWING NO. A-02-03

SHEET 2 of 2

REV. 0

87-02-01

DATE OF ISSUE

## UNITS OF IMPERIAL MEASURE

Ib = POUNDS (MASS)tn = TON lbf = POUND (FORCE)
psi = POUND (FORCE) PER SQUARE INCH

SPC/AUTODRAF

## UNITS OF METRIC MEASURE

 L = LITRE = 1000 cm<sup>3</sup> mL = MILLILITRE g = GRAM mg = MILLIGRAM kg = KILOGRAM t = TONNE = 1000 kg N = NEWTON Pa = PASCAL = N/m<sup>2</sup> kPa = KILOPASCAL =  $kN/m^2$ 

VARIOUS

SIN = SINE OF AN ANGLE COS = COSINE OF AN ANGLE TAN = TANGENT OF AN ANGLE AWG = AMERICAN WIRE GUAGE DIA = DIAMETER kcmil = THOUSAND CIRCULAR MILS (FORMERLY MCM) HT = HEIGHT

 SASKATCHEWAN POWER CORP. – DISTRIBUTION ENGINEERING STANDARDS

 DRN.
 Design CHK.
 SAFETY APP.
 APPROVAL
 MISCELLANEOUS

 CHKD.
 FTK
 DATE
 DATE
 DATE
 DATE

 DATE
 05 -02 -01
 DRAWING NO.
 A-02 -04
 SHEET 1 of 1
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