

INFORMATION BULLETIN:

400 A 120/240 V SERVICE ISOLATION ASSEMBLIES

1.0 ITEMS COVERED

Stock No.	Description
96007552	SWITCH, DISCONNECT, 400 A, LOADBREAK, 600 V, 3 POLES
96007031	KIOSK, PAD MOUNTED, SERVICE ISOLATION, 400 A
400-0840	PAD, CONCRETE, PRECAST, 1 PH JUNCTION KIOSK
96007554	ENCLOSURE, POLE MOUNTED, SERVICE ISOLATION, 400 A

2.0 OVERVIEW

To eliminate the hazard to BC Hydro personnel working on an energized 400 A revenue meter socket with an integral CT, BC Hydro has developed a 400 A service isolation assembly.

For underground service, BC Hydro will supply the pad-mounted Service Isolation Kiosk, whereas for overhead services, BC Hydro will supply the wall/pole-mounted Service Isolation Enclosure for installation by the customer.

IMPORTANT NOTE: For service connections which require installation of service isolation assembly on private property, the Owner shall obtain a written approval from a local Electrical Inspector and submit to the BC Hydro designer.

Summary of Changes to Construction Standards

The 400 A service isolation assembly is covered by the following standards (included as appendices of this advisory):

ES 43 N2-12 R1 (1sheet) *Secondary Services Single Phase to 400A 120/240V Service Isolation Assembly*

ES 53 S1-01.02 – 04 R8 (3 sheets) *Secondary Services Single Phase to 400A, 120/240V Service Isolation Assembly*

Note: Existing ES53 standard S1-01.02 R7 has been replaced with three new pages numbered S1-01.02 R8, S1-01.03 R8 and S1-01.04 R8. As a result, the entire ES 53 S1-01 section has been re-issued due to renumbering of existing pages. A pull box is no longer required for connecting to a 400 A CT, and this change has been reflected on S1-01.05 R8.

ES 54 S1-01.10 R8 (1 sheet) *Secondary Services Single Phase to 400A 120/240V Service Isolation Assembly*

Passport Design – CUs and CUGs

New compatible unit groups will be created to cover the pad-mounted and wall/pole-mounted assemblies.

CU Groups	Description
TBA	TBA

Refer to the Application Guide for 400 A 120/240 V Service Isolation Assembly (to be issued) for design aid and appropriate CUGs to be included in a design.

3.0 ACTIONS

Effective December 11, 2009, each new 400 A 120/240 V large residential service shall be equipped with a 400 A service isolation assembly.

4.0 FIGURE – Pad-mounted Assembly



Figure 1: 400 A 120/240 V Service Isolation Kiosk for U/G Service Connection

5.0 DISTRIBUTION STANDARDS CONTACTS

Name: Mark Kelvin	E-mail: mark.kelvin@bchydro.com
Phone: 604-528-2402	Fax: 604-528-1662

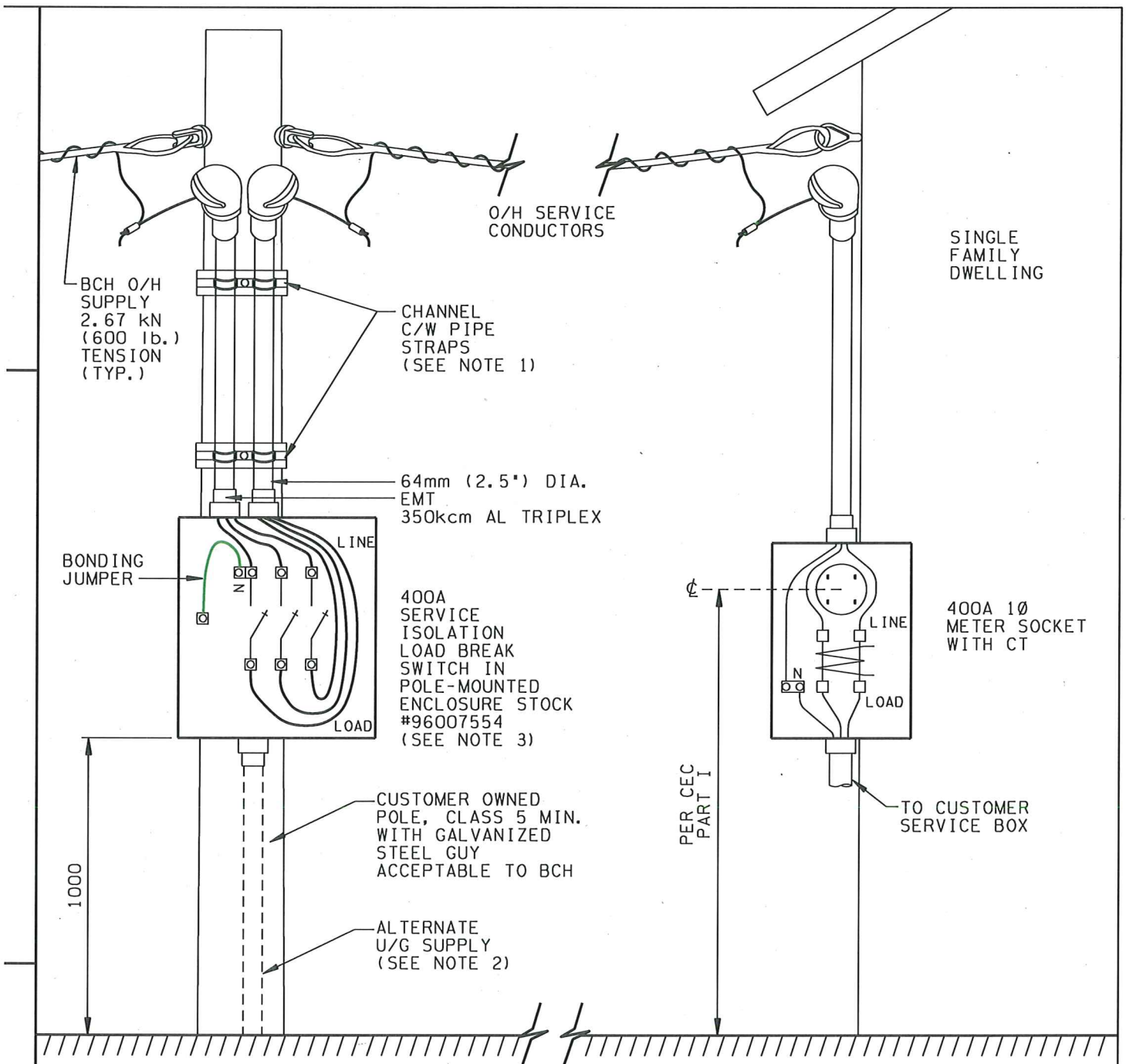
Name: Joanne Kwok	E-mail: joanne.kwok@bchydro.com
Phone: 604-529-5541	Fax: 604-528-1662

6.0 REVENUE METERING CONTACT

Name: Phil Russell	E-mail: phil.russell@bchydro.com
Phone: 604-528-2721	Fax: 604-528-7945

7.0 ORIGINATORS & APPROVAL

Originator: ORIGINAL SIGNED BY: Mark Kelvin	Approved: ORIGINAL SIGNED BY: Fred Dennert
Date: September 3, 2009	Date: September 3, 2009
Originator: ORIGINAL SIGNED BY: Joanne Kwok	
Date: September 3, 2009	

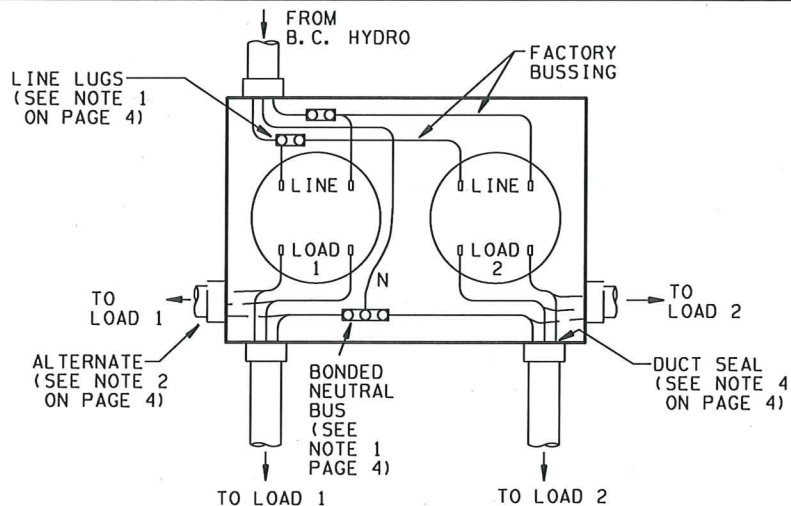


Notes:

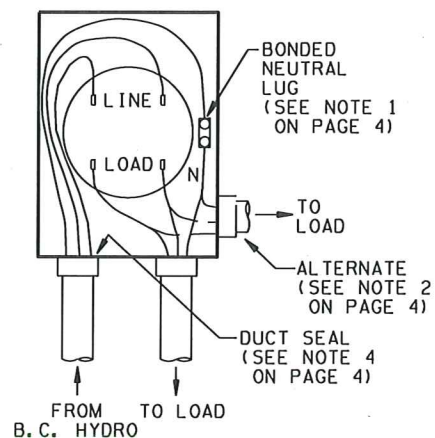
1. EMT conduit must not be in direct contact with the pole - Channel and pipe straps must be used.
2. For BCH U/G supply, rotate the mounting panel inside the pole-mounted enclosure by 180 degrees to have the line-side terminals at the bottom of the enclosure.
3. For service connections which require installation of service isolation assembly on private property, the owner shall obtain a written approval from a local Electrical Inspector and submit to BC Hydro designer.

DRAFTER: DC	DESIGNER	RECOMMENDED	APPROVED	SECONDARY SERVICES SINGLE PHASE TO 400A 120/240V SERVICE ISOLATION ASSEMBLY
	J. KWOK	M. KELVIN	F. DENNERT	
	ORIGINAL ISSUE DATE: OCTOBER 1993			
BC Hydro DISTRIBUTION STANDARDS				PAGE 1 OF 1
				ES43 N2-12
				R. 1

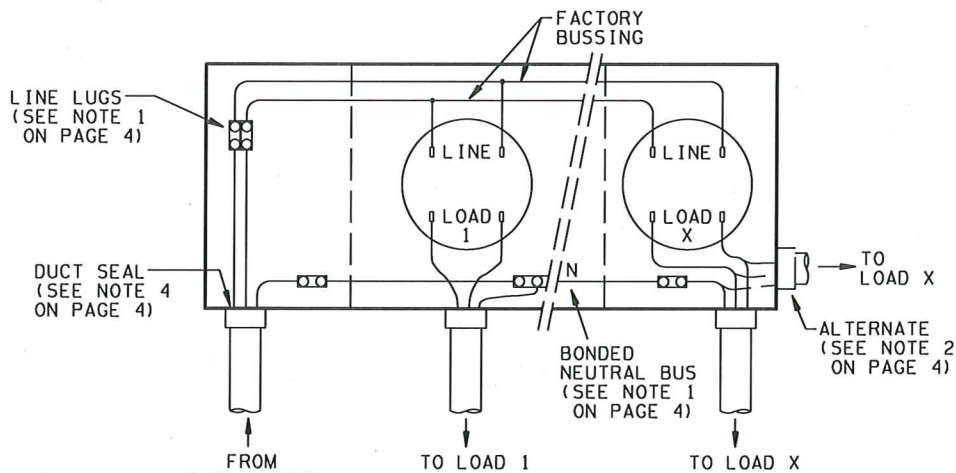
R6-PULLBOX WIDTH REVISED 2000-10-11 BF
 R7-400A CONFIG. AND SHEET 4 ADDED JULY '07 MK
 R8-400A CONFIG. AND SHEET 2, 3 & 4 ADDED AUG '09 MK



200A MULTIPLE MAIN O/H SERVICE



UP TO 200A SINGLE

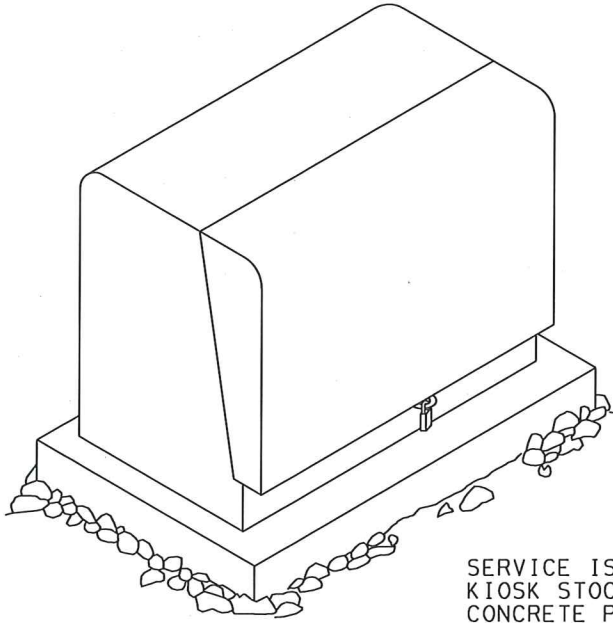


200A & 400A MULTIPLE MAIN U/G SERVICE

DESIGNER M. KELVIN	RECOMMENDED M. KELVIN	APPROVED F. DENNERT
-----------------------	--------------------------	------------------------

ORIGINAL ISSUE DATE: OCTOBER 1979

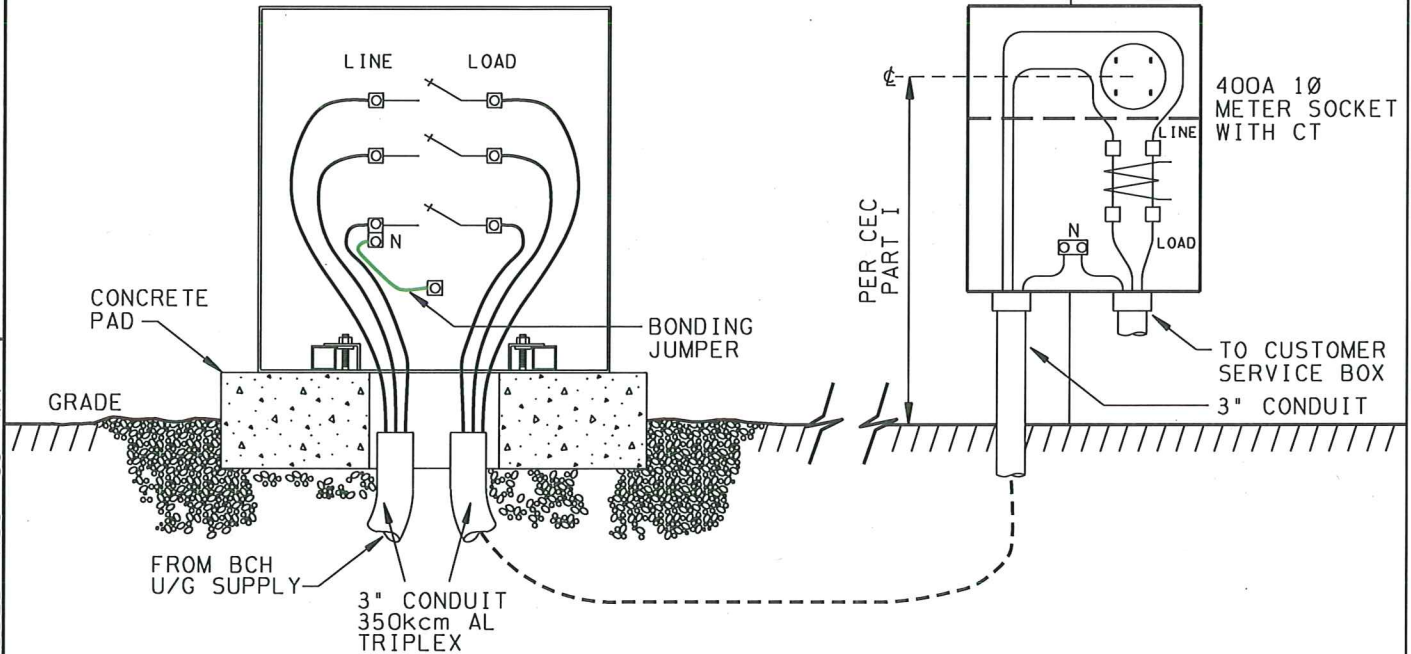
**SECONDARY SERVICES
SINGLE PHASE TO 400A, 120/240V
METER SOCKET ENCLOSURES**



SERVICE ISOLATION
KIOSK STOCK #96007031
CONCRETE PAD STOCK #400-0840

VIEW OF INSTALLED UNIT

400A SERVICE ISOLATION
LOAD BREAK SWITCH
IN A PAD MOUNTED KIOSK
(SEE NOTE 3 ON S1-01.04)



R8-NEW SHEET
ADDED AUG '09
MK

DRAFTER: DC

DESIGNER

J. KWOK

RECOMMENDED

M. KAMVIN

APPROVED

F. DENNERT

ORIGINAL ISSUE DATE: OCTOBER 1993

SECONDARY SERVICES
SINGLE PHASE TO 400A, 120/240V
SERVICE ISOLATION ASSEMBLY

BChydro DISTRIBUTION STANDARDS

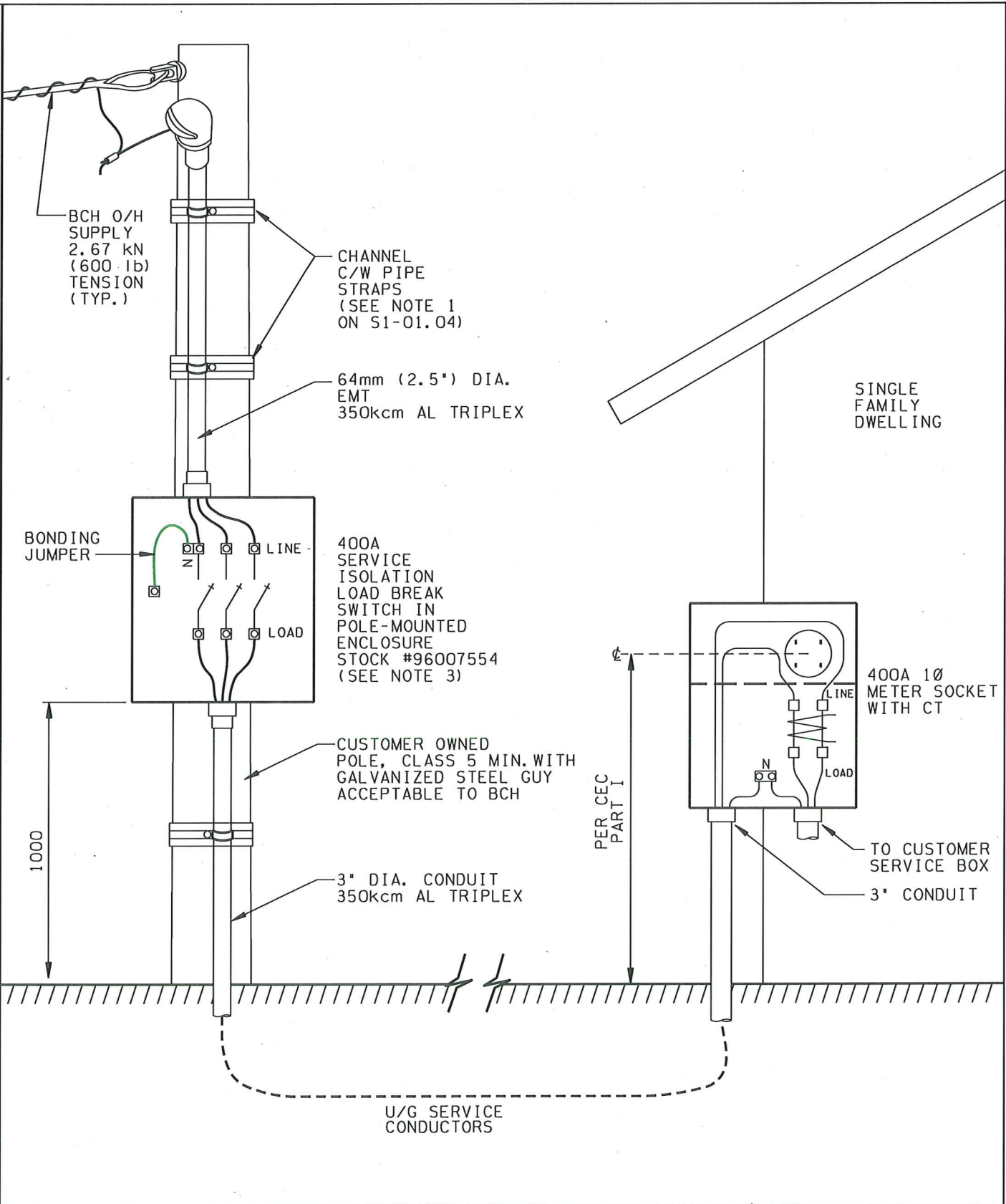
PAGE 2
OF 8

ES53 S1-01.02

R. 8

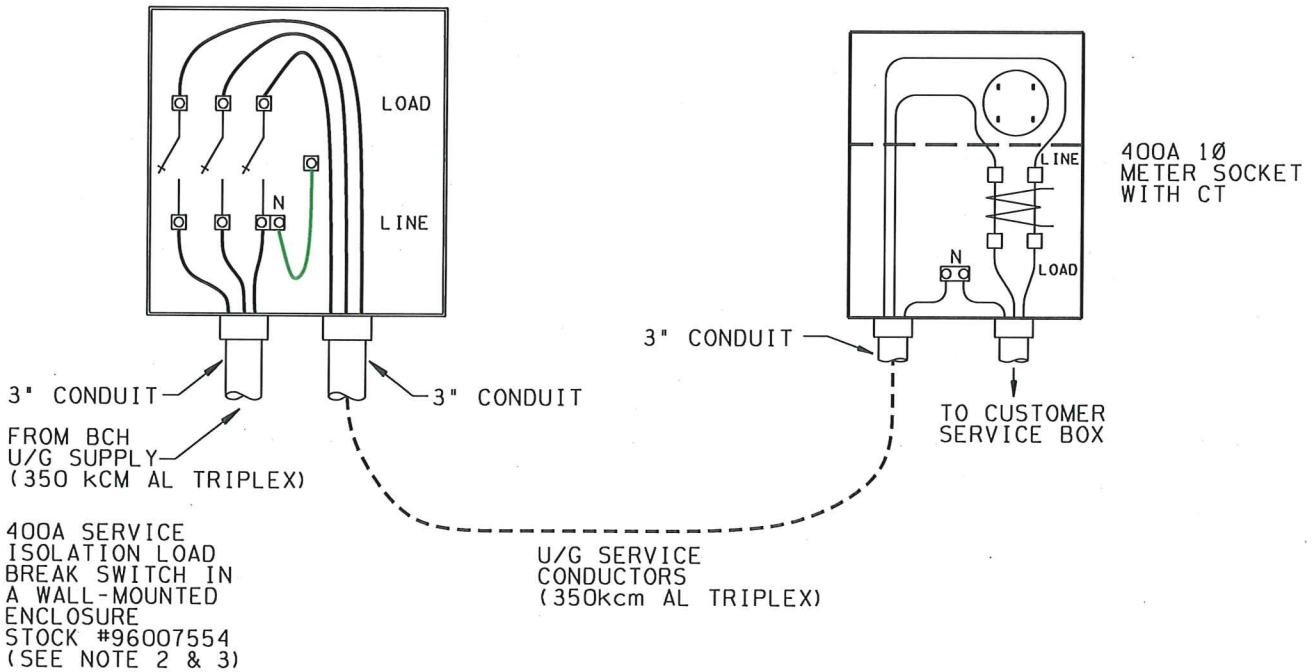
R8-NEW SHEET
ADDED AUG '09 MK

DRAFTER: DC



DESIGNER <i>J. KWOK</i>	RECOMMENDED <i>M. KELVIN</i>	APPROVED <i>F. DENNERT</i>
ORIGINAL ISSUE DATE: OCTOBER 1993		

**SECONDARY SERVICES
SINGLE PHASE 400A, 120/240V
SERVICE ISOLATION ASSEMBLY**



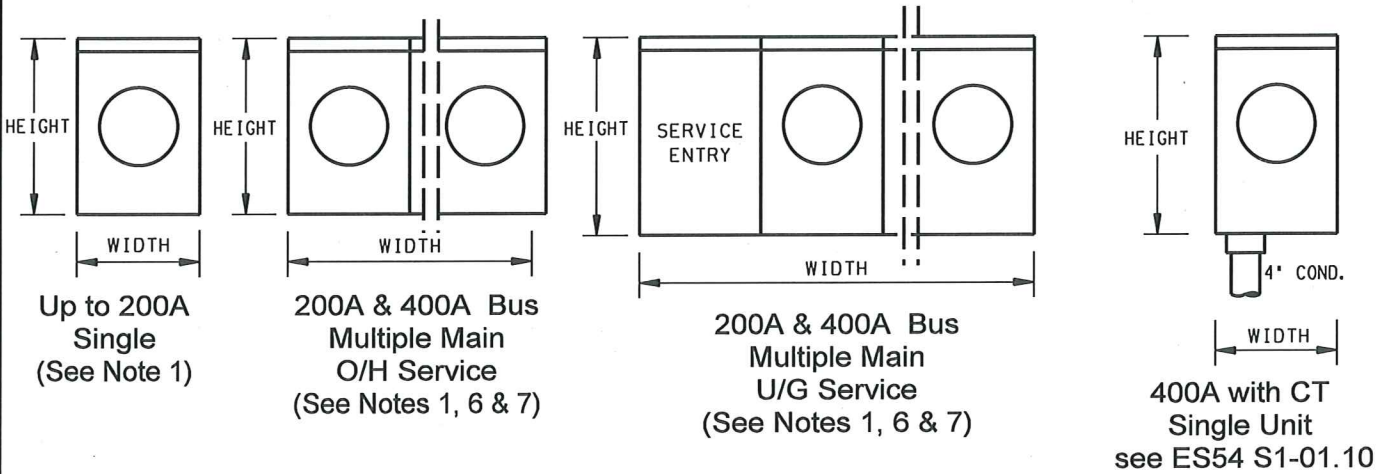
Notes:

1. EMT conduit must not be in direct contact with the pole - channel and pipe straps must be used.
2. For installation details of the wall-mounted enclosure, refer to ES54 S1-01.10.
3. For service connections which require installation of service isolation assembly on private property, the owner shall obtain a written approval from a local Electrical Inspector and submit to BC Hydro designer.

R8-NEW SHEET AUG '09 MK

DRAFTER: DC

DESIGNER <i>J. KWOK</i>	RECOMMENDED <i>M. KELVIN</i>	APPROVED <i>F. DENNERT</i>	SECONDARY SERVICES SINGLE PHASE 400A, 120/240V SERVICE ISOLATION ASSEMBLY
ORIGINAL ISSUE DATE: OCTOBER 1993			



MINIMUM REQUIREMENT OF ENCLOSURES FOR METER SOCKETS

Enclosure	Sockets	Minimum Outside Dimensions			K.O. for Duct min.	Minimum Line Connector Range
		Height	Width	Depth		
Up to 200A Single	1	430	240	130	3"	#2 - 3/0 Cu #2 - 250 kcm Al
200A Main Bus	2	380	435	130	3"	#2 - 3/0 Cu #2 - 250 kcm Al
	3	380	650	130		
	4	380	870	130		
400A Main Bus (See Note 1)	2	508	665	140	3"	#1/0 - 500 kcm Cu / Al
	3	508	880	140		
	4	508	1110	140		
400A with Integral CT	1	1016	1016	222	4"	#1/0 - 250 kcm Cu / Al
	1	1016	1016	222	3"	#1/0 - 500 kcm Cu / Al

R8-400A CONFIG. AND SHEET 2,
3 & 4 ADDED AUG '09 MK

DRAFTER: DM

DESIGNER <i>M. KELVIN</i>	RECOMMENDED <i>M. KELVIN</i>	APPROVED <i>F. DENNERT</i>
------------------------------	---------------------------------	-------------------------------

ORIGINAL ISSUE DATE: MARCH 1996

**SECONDARY SERVICES
SINGLE PHASE TO 400A, 120/240V
METER SOCKET ENCLOSURE DETAILS**

LIST OF CONDUCTOR SIZES AND STOCK NUMBERS
(FOR RESIDENTIAL SERVICES)

<u>SERVICE SIZE</u>	<u>SERVICE IN CONDUIT</u>	
	<u>ALUMINUM</u>	<u>COPPER</u>
UP TO 125 Amps	3 x #1 382-3100	N/A
1 X 200 Amps 2 X 100 Amps	3 x #4/0 382-3102	N/A
UP TO 4 X 200 Amps on 400 Amp Bus	3 x 500 kcm 382-3105	3 x 350 kcm 380-1973
1 X 400 Amps	3 x 500 kcm 382-3105	3 x 350 kcm 380-1973

NOTES:

1. Position and type of contact lugs and neutral lugs may vary with manufacturer. For exact list of approved meter sockets, refer to BCH Requirements for Secondary Voltage Revenue Metering Guide.
2. Under no circumstances shall the load conductors cross or otherwise interfere with the incoming BC Hydro conductors.
3. This drawing is based upon Distribution Instructions S10-01 and S10-3.
4. All service runs shall be sealed thoroughly with duct seal (Stock No. 141-1345) at the point where BC Hydro conductors enter the meter base enclosure.
5. In areas where water or gases may enter into electrical rooms, the ducts should be sealed with Rayflate duct sealants (Stk. No. 141-1383 for 3" ducts).
6. For multiple main services, maximum number of meter sockets is 4. For multiple main installations in excess of 4 meter sockets, BCH require a service switch ahead of multiple main per BCH requirements for secondary voltage revenue metering.
7. All multiple main enclosures shall have separate compartment for U/G service cable connection.

R8-400A CONFIG. AND SHEET 2,
3 & 4 ADDED AUG '09 MK

DRAFTER: DC

DESIGNER M. KELVIN	RECOMMENDED M. KELVIN	APPROVED F. DENNERT
-----------------------	--------------------------	------------------------

SECONDARY SERVICES
SINGLE PHASE TO 400A, 120/240V
SERVICE CONDUCTOR SIZES

ORIGINAL ISSUE DATE: OCTOBER 1979

BChydro  **DISTRIBUTION STANDARDS**

PAGE 6
OF 8

ES53 S1-01.06

R. 8

LIST OF CONDUCTOR SIZES AND STOCK NUMBERS FOR SERVICES
TO SINGLE COMMERCIAL AND INDUSTRIAL CUSTOMERS ON PRIVATE PROPERTY

1 Phase (Triplex)

Customer Main Switch/Breaker Size	Aluminum			Copper		
	No. of Bundles	Size	Stock Number	No. of Bundles	Size	Stock Number
Up to 125A	1	#1	382-3100	N/A	N/A	N/A
200A	1	#4/0	382-3102	1	#1/0	380-1971
400A	1	500 kcm *	382-3105	1	350 kcm	380-1973
600A	2	350 kcm	382-3104	2	#4/0	380-1972

NOTES:

- The above list applies to both secondary services with 80% and 100% rated main service breakers.
 - Cable ampacity has been calculated using a Load Factor (LF) of 0.8, where LF is defined based on a 24 hour cycle as per ES53 U1-01.06 R4.
 - Cable ampacities in conduits are as per BCH Standard ES53 U1-01.03 R4.
 - Cable ampacities in vertical runs at the Terminal Pole are based on the following assumptions:
 - Ambient air temperature of 30° C
 - Wind speed of 2 ft/s.
- * 400A services with 80% main service breaker and fed from padmounted transformers may use 350kcm Aluminum Triplex. This does not apply to services fed from polemounted transformers.

R8-400 CONFIG AND SHEET 2,
3 & 4 ADDED AUG '09 MK

DRAFTER: JMW

DESIGNER

A. JACOB

RECOMMENDED

M. KEVIN

APPROVED

F. DENNERT

**SECONDARY SERVICES
SINGLE PHASE TO 600A, 120/240V
SERVICE CONDUCTOR SIZES**

ORIGINAL ISSUE DATE: OCTOBER 1979

BChydro  **DISTRIBUTION STANDARDS**

PAGE 7
OF 8

ES53 S1-01.07

R. 8

RECOMMENDED SIZE OF TRANSFORMERS
TO SUPPLY A SINGLE SERVICE TO INDUSTRIAL/COMMERCIAL
CUSTOMERS ON PRIVATE PROPERTY

Customer Main Switch/Breaker Size	O/H Unit	LPT
Up to 125A	25	25
200A	50	50
400A	75	75
600A	100	100

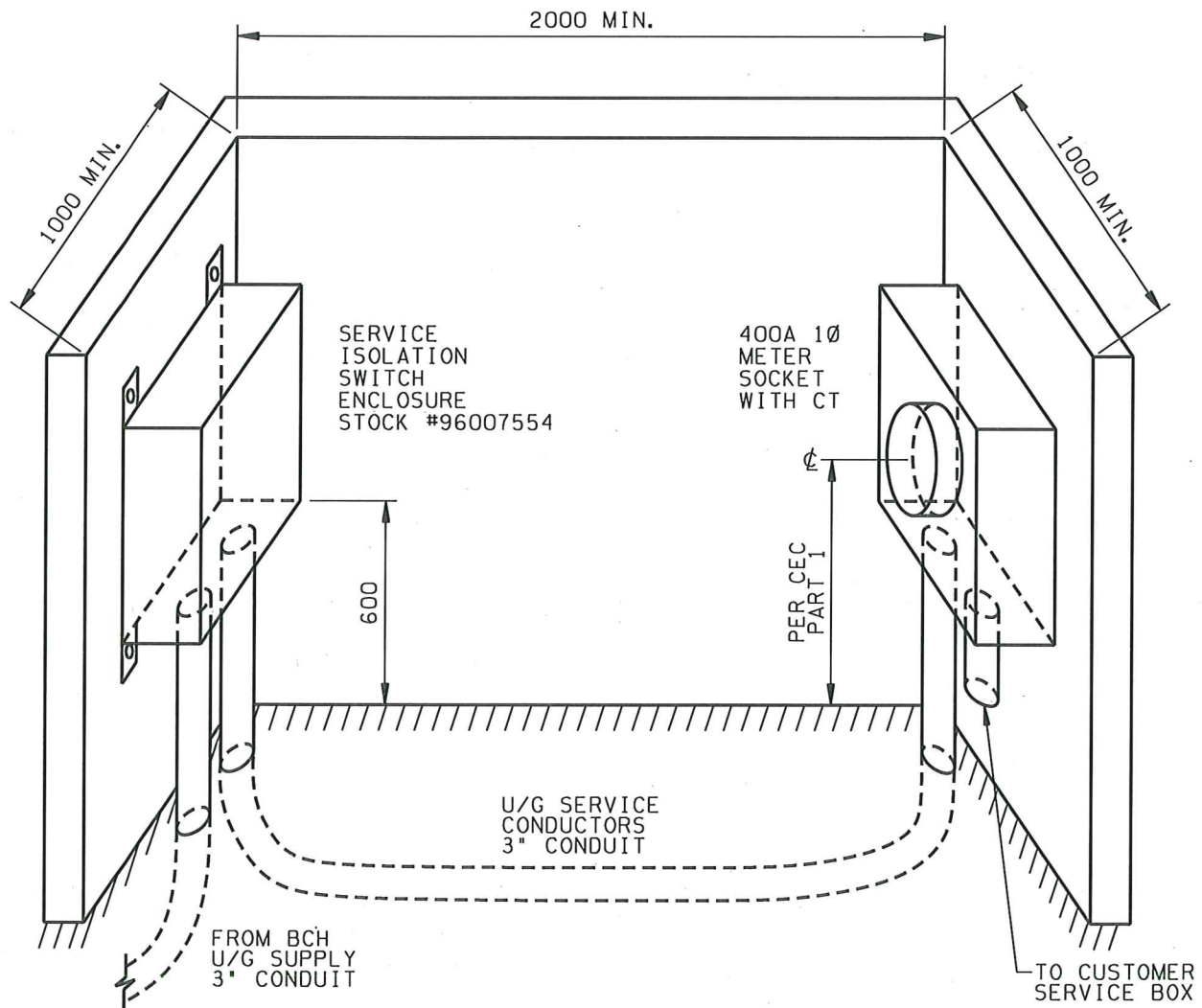
Notes:

1. The above table is based on 80% demand with sustained peak loads up to 110% of transformer kVA, as per note 2.
2. BCH supplied transformers were deemed to be rated for 110% of the nameplate kVA for a maximum duration of 8 hours within a 24 hour period, with a continuous preload of 80% and a maximum temperature rise of 65° C over 30° C ambient.

R8-400A CONFIG AND SHEET 2,
3 & 4 ADDED AUG '09 MK

DRAFTER: DM

DESIGNER A. JACOB	RECOMMENDED M. KELVIN	APPROVED F. DENNERT	SECONDARY SERVICES SINGLE PHASE TO 600A, 120/240V SUPPLY FOR SINGLE SERVICES TRANSFORMER SIZES
ORIGINAL ISSUE DATE: FEBRUARY 2007			
BChydro  DISTRIBUTION STANDARDS			PAGE 8 OF 8
			E53 S1-01.08 R. 8



Notes:

1. Minimum dimensions shown are required for adequate working space for BCH personnel.
2. U/G service conduit must be installed outside of the wall.
3. For detailed installation of the meter socket refer to "BC Hydro Requirements for Secondary Metering Installations".
4. For service connections which require installation of service isolation assembly on private property, the owner shall obtain a written approval from a local Electrical Inspector and submit to BC Hydro designer.

DRAFTER: DC	DESIGNER	RECOMMENDED	APPROVED	SECONDARY SERVICES SINGLE PHASE TO 400A 120/240V SERVICE ISOLATION ASSEMBLY		
	J. KWOK	M. KELVIN	F. DENNERT			
	ORIGINAL ISSUE DATE: OCTOBER 1993			PAGE 10 OF 10	ES54 S1-01.10	R. 8