



Department of consumer and corporate affairs / Ministère de la consommation et des corporations



STANDARDS BRANCH - DIRECTION DES NORMES

NOTICE OF APPROVAL

T- 13 - 1

OTTAWA November 13, 1969.

FERRANTI-PACKARD TYPES "VU5", "VE5", "VC5", "DC5", "VU8.7", "VE8.7", "VC8.7", "DC8.7", "FH-8.7", "MS-8.7", "MC-8.7", "FH-15", "MS-15", "MP-15", "MC-15", "VC15", "VE15", "DC-15", "CX-15", "CFX15", "VU15", "MP25", "MC-25", "M25", "MG25", "M35", "MC35", "N35", "NC35", "MG35", "NG35", "M46", "MG46", "MC46", "M69", "MC69", AND "MG69" VOLTAGE TRANSFORMERS; AND TYPES "CSS5", "EM5", "CSS8.7", "EM8.7", "CSS15", "EM15", "KM25", "WN25", "KM35", "WN35", "KM46", "KM69" AND "KMD69" METERING OUTFITS.

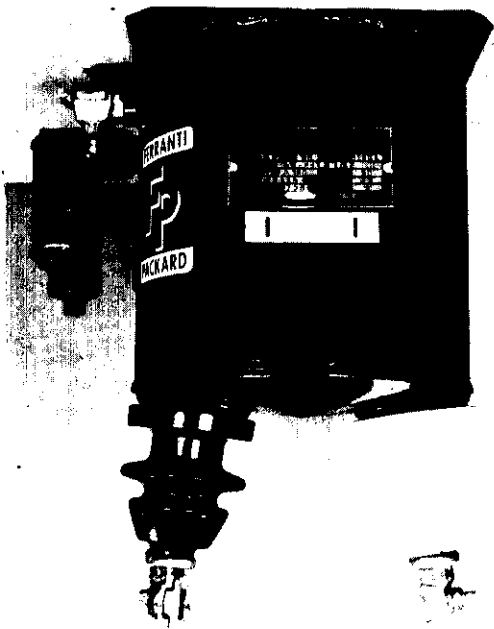
Apparatus

Type	Voltages	Insulation Kv	Accuracy
VU5, VC5 DC5	2400/4160Y, 4800/8320Y, 4200Δ, 4800Δ Secondary 120V	5.0	0.3Y, 0.6Z 0.3Y, 1.2Z on units prior to serial 2-64200
VE5	same as above	5.0	0.3WXY, 0.6Z NP 0.3Y, 0.6Z
VU8.7, VE8.7 VC8.7, DC8.7	4200/7280Y, 4800/8320Y 7200, Δ 8400 Δ Secondary 120V	8.7	0.3WXY, 0.6Z NP 0.3Y, 0.6Z
FH-8.7, MS-8.7 MC-8.7	2400/4160Y, 4800/8320Y secondary 120V	8.7	0.3WXYZ, ZZ NP 0.3ZZ
FH-15, MS-15 MP-15, MC-15 DC-15, VC15 CX-15 CFX15 (fuses) VU15 (compound filled outdoor) VE15	7200/12470Y, 8400/14550Y, 7700/13337Y 7620/13200Y, 12000Δ, 14400 Δ secondary 120V indoor indoor indoor	15.0	0.3WXYZ, ZZ NP 0.3ZZ or 0.3Z NP 0.3WXYZ, 0.6ZZ
MP25	14400/24940Y, 24000 Δ secondary 120V	25.0	0.3WXYZ, ZZ NP 0.3ZZ
MC25	8320/14400Y secondary 69.3V	25.0	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ

M 4-15

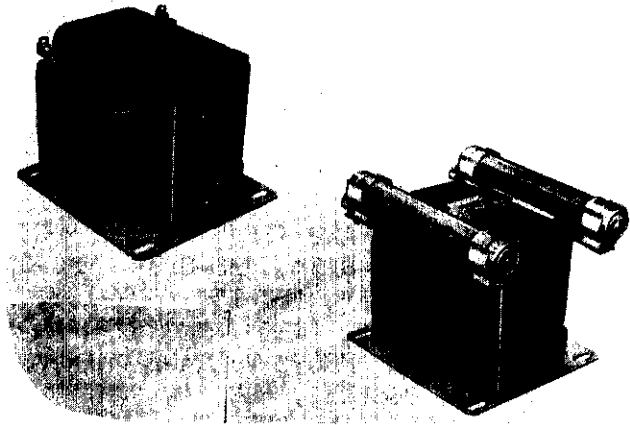
0.3WXY, 2.2

POTENTIAL TRANSFORMERS



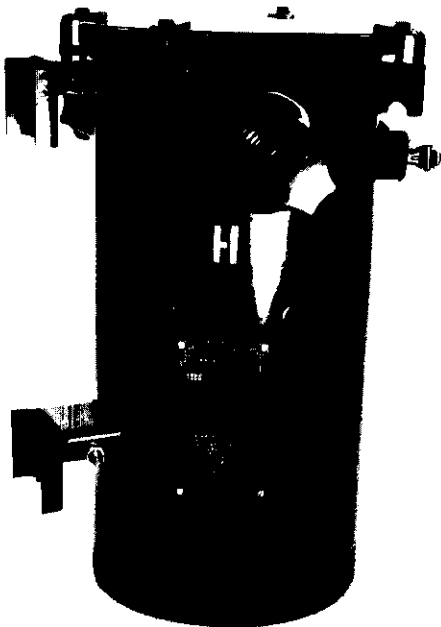
VU 5

VU 8.7



VE 5

VE 8.7



FH 8.7

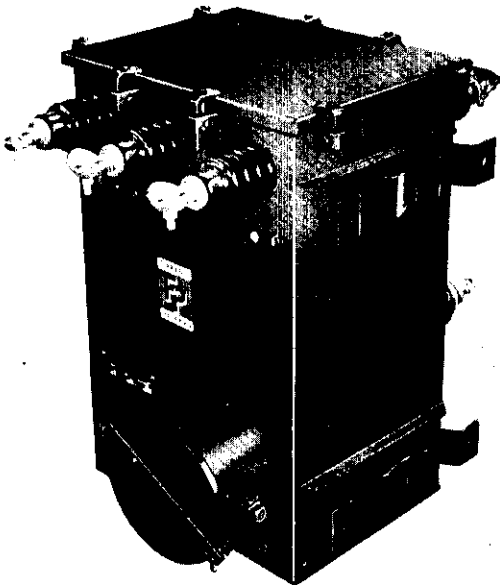


CFX

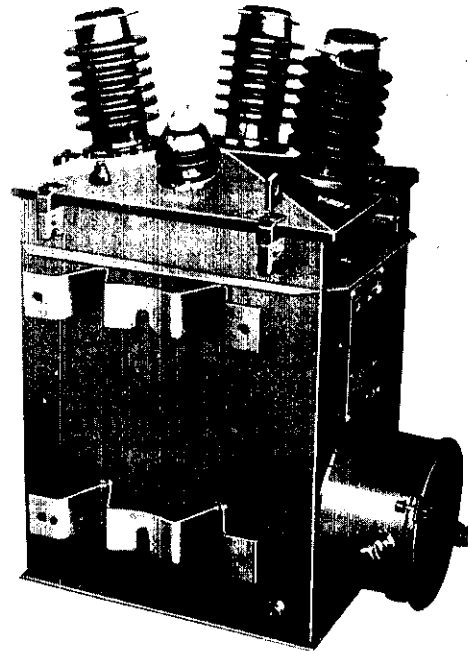
<u>Type</u>	<u>Voltages</u>	<u>Insulation Kv</u>	<u>Accuracy</u>
M25	23000 Δ , 24000 Δ , 25000 Δ secondary 115, 120 or 125V	25.0	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
MG25	14400/24940Y secondary 120V	25.0	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
M35, MC35 N35, NC35	24000 Δ , 27600 Δ , 34500 Δ secondary 120V or 115V	34.5	0.3WXYZ, ZZ NP 0.3ZZ
MC35, NC35	14400/24940Y secondary 120V	34.5	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
MG35, NG35	20125/34500Y secondary 115V	34.5	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
M46, MC46	46000 Δ , 48000 Δ secondary 115V or 120V	46.0	0.3WXYZ, ZZ NP 0.3ZZ
MG46, MC46	24000/41570Y, 27600/48000Y secondary 120 or 115V	46.0	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
M69)) MC69)	69000 Δ , 72000 Δ secondary 115 or 120V 60000 Δ , 66000 Δ secondary 120V	69.0 69.0	0.3WXYZ, ZZ NP 0.3ZZ 0.3WXYZ, ZZ NP 0.3ZZ
MG69	39800/69000Y secondary 115V	69.0	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
MG69	40250/69000Y double secondary 115-67.08	69.0	0.3WXYZ, 0.6ZZ NP 0.3Z, 0.6ZZ
Frequency	60Hz all ratings		

Note: Any of the transformers listed may be supplied with a double secondary. With the secondaries connected in parallel, the accuracies as shown will apply. With two single secondaries the characteristics of each are identical so that the accuracies as shown will apply with the burden equally divided. For example, the type MG69 with a single secondary has an accuracy of 0.3WXYZ, 0.6ZZ; as a double secondary the accuracy would be 0.3WXY, 0.6Z for each secondary and the nameplate would be marked 0.3Y, 0.6Z/0.3Y, 0.6Z. 0.3ZZ

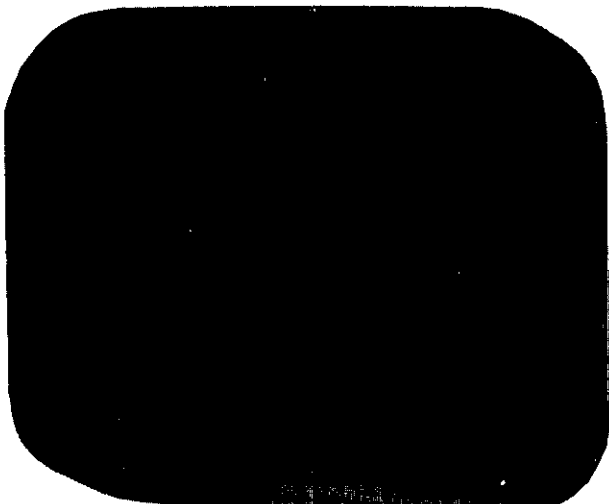
POTENTIAL TRANSFORMERS



CSS 5 CSS 8·7
CSS 15



EVP 5 EVP 8·7
EVP 15



EM 5 EM 8·7
EM 15

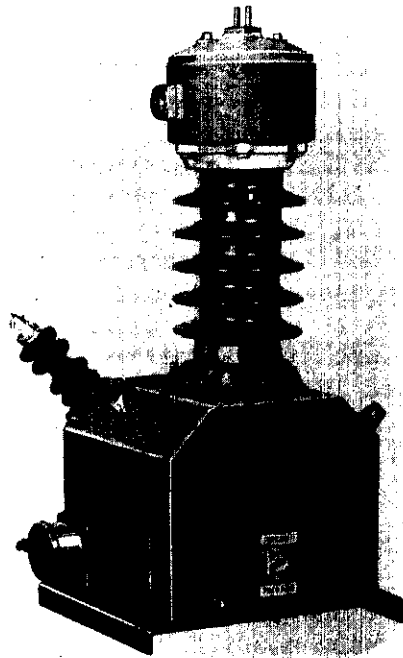


KM 25 KM 35
KM 46 KM 69

Description of Type Designation

VU5	Outdoor, compound-filled separate unit.
VC5	Core and coil assembly for use in oil-insulated type "CSS5" and "EVP5" polyphase metering outfits.
VE5	Encapsulated for indoor service.
DC5	Core and coil assembly used in compound-filled type "EM5" polyphase metering outfit.
FH8.7	Outdoor oil-insulated separate unit.
VC8.7	Core and coil assembly for use in oil-insulated type "CSS8.7" and "EVP8.7" polyphase metering outfits.
VE8.7	Encapsulated for indoor service.
VU8.7	Outdoor, compound-filled separate unit.
MS8.7	Type FH15 with LV bushings replaced by conduit box.
FH15	Outdoor oil-insulated separate unit, LV bushings.
MC15	Type FH15 used in type CSS15 oil-insulated metering outfit.
VC15	Type FH15 used in type EVP15 oil-insulated metering outfit.
VE15	Encapsulated for indoor service.
MP15	Type MC15 oil-insulated in cylindrical tank with two primary bushings (cover-mounted).
MS15	Type FH15 with side wall bushings for H.V. and LV bushings replaced by conduit box.
CX	Type FH15 compound-filled separate unit without fuses.
CFX	Type CX with fuses mounted on top.
DC15	Type FH15 used in type EM15 compound-filled metering outfit.
VU15	Type FH15 in compound-filled outdoor unit.
MC25	Type MC25 used in type KM25 3-phase 3-wire metering outfit.
NC25	Type MC25 askarel-filled used in type WN25 outdoor askarel-filled metering outfit.
MP25	Outdoor, oil-insulated, cover mounted bushings.
MG35	Outdoor, oil-insulated, single bushing - Grd Y service.
NG35	Outdoor, askarel-filled, single bushing - Grd Y service.
M35	Outdoor, oil-insulated - two bushing-line-to-line service.
N35	Outdoor, askarel-filled, two bushing-line-to-line service.
NC35	Used in type WN35 askarel-filled outdoor 3-phase 3-wire or 3-phase 4-wire metering outfits.
MC35	Used in type KM35 oil-filled outdoor 3-phase 3-wire or 3-phase 4-wire metering outfits.
MG46	Outdoor oil-insulated, single bushing, Grd Y service.
M46	Outdoor oil-insulated - two bushing, line-to-line service.
MC46	Used in KM46 oil-filled outdoor 3-phase 3-wire or 3-phase 4-wire metering outfits.
MC69	Used in KM69 or KMD69 outdoor 3-phase 3-wire or 3-phase 4-wire metering outfits.
MG69	Outdoor oil-insulated, single bushing, Grd Y service.
M69	Outdoor oil-insulated, two bushing, line-to-line service.

POTENTIAL TRANSFORMERS



MG 25 MG 35
MG 46 MG 69



M 25 M 35
M 46 M 69



M 25 M 35
M 46 M 69

Type "M" covers transformers for line-to-line operation. Type "MC" covers core and coil units for use in metering outfits.

These may be either for line-to-line operation or with graded insulation for line-to-ground operation.

Type "MG" indicates a transformer with a single high voltage bushing for line-to-ground operation.

A similar distinction also applies as far as transformers designated as type "N" used for askarel-filled voltage transformers or metering outfits.

<u>Metering Outfit Type</u>	<u>Contains Voltage transformer type</u>	<u>Current Transformer Type</u>
CSS5	VC5	Ry or E5 special
EVP5	VC5	KC5
EM5	DC5	EC5
CSS8.7	MC8.7	E5 special or RY
EVP8.7	VC8.7	KC8.7
EM8.7	DC8.7	RY or EC8.7
CSS15	MC15	E8.7 special or RY
EVP15	VC15	KC15
EM15	DC15	EC15
KM25	MC25	KC25
WN25	NC25	WC25
KM35	MC35	KC35
WN35	NC35	WC35
KM46	MC46	KC46
KM69	MC69	KC69
KMD69	MC69	KC69

This is a consolidation of previous circulars SD-EA.301, SD-EA.302, SD-EA.358, SD-EA.367, SD-EA.376 (amended), S-EA.434 (amended), S-EA.435, S-EA.441, S-EA.471, S-EA.485, S-EA.506 (amended), S-EA.533, S-EA.579, S-EA.586, T5 and T9 together with additional higher voltage ratings. The circular also covers metering outfits when they contain voltage transformers that are listed above. It is also a reissue of circular T-13 to cover VE15 voltage transformers.

Any voltage transformer included in the above may have a single secondary winding, a double secondary winding or a tapped secondary winding.

To denote this, the nameplate will be marked on as follows, e.g.

Single secondary 69000-115

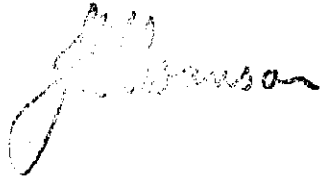
Double secondary 69000-115-115

Tapped secondary 40250/69000Y - 115/67.08

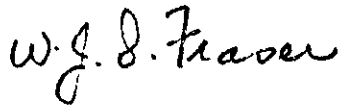
This approval covers metering units containing voltage transformers of any approved ratio along with current transformers of any ratio covered by circular T14 provided that the insulation and voltage ratings are compatible.

Approval granted to:

Ferranti-Packard Electric Limited,
St. Catharines,
Ontario.



J.S.T. Swanson, P. Eng.,
Chief, Standards Laboratory,
Standards Branch.



W.J.S. Fraser,
Chief, Electricity and Gas Division,
Standards Branch.

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