

NOISE LEVEL ANALYSIS

Transformer installation and noise :

Noise in a transformer is basically caused by magnetostriction. This translates into a hum of twice the applied frequency. This inherent characteristic of the transformer cannot be completely eliminated. It is not uncommon to observe an increase of 10 to 20 dBA in an installation, and very often it is a lot harder to correct the situation after the fact. Location, combined with good practice often makes the difference. Included, you will find a table of noise level vs kVA, a list of recommended practices to help you choose the right location, and tips for prior to putting the transformer into service.

kVA	Single Phase			
	Ventilated			Closed
	≤1.2 kV	≥ 1.2 kV ≤ 15 kV	≥15 kV ≤ 25 kV	≤ 15 kV
0-9	45	50	54	45
10-50	50	55	59	50
51-100	55	60	64	55
101-167	60	65	69	57
168-333	65	68	72	59
334-1000	68	68	72	61

kVA	Three Phase			
	Ventilated			Closed
	≤1.2 kV	≥ 1.2 kV ≤ 15 kV	≥15 kV ≤ 25 kV	≤ 15 kV
0-9	40	45	49	45
10-50	45	50	54	50
51-150	50	55	58	55
151-300	55	58	61	57
301-500	60	60	63	59
501-700	62	62	65	61
701-1000	64	64	67	63
1001-1500	65	65	68	64
1501-2000	66	66	69	65
2001-3000	68	68	71	66
3001-3750	71	71	74	68
3751-5000	73	73	76	70

These tables are based on CSA C9-02 standard. These values are used under maximum test conditions.

Choice of location and recommendations:

- Avoid installations near sound reflecting surfaces.
- Avoid installations in narrow places or hallways.
- If possible, choose locations where sound would be least objectionable.
- If installation near sound reflecting surfaces cannot be avoided, be sure to use acoustic absorbing material between transformer and sound reflecting surface.
- Avoid any mechanical coupling to structure or equipment.
- Use of flexible conduct is highly recommended.
- Avoid installation on surfaces of relatively light mass like wood, tiles, masonry.
- Make sure the mass of installation surface is at least superior to the weight of transformer.
- Install proper anti-vibration pads to avoid transmission of vibration to floor or mounting surface.
- Also refer to IEEE C57.94-1982 : RECOMMENDED PRACTICE FOR INSTALLATION, APPLICATION, OPERATION, AND MAINTENANCE OF DRY-TYPE GENERAL PURPOSE DISTRIBUTION AND POWER TRANSFORMERS

Prior to putting the transformer into service:

- Remove all shipping brackets located at top of units. (when present)
- Loosen anchoring bolts so that rubber pads between transformer and enclosure are no longer over compressed.
- Select proper voltage tap to help reduce emitted noise.
- Verify overall assembly and screw tightness.
- Make sure the installation is level.

Should you require additional assistance do not hesitate to contact us:

Delta Transformers Inc.

☎ : 1 800 663-3582 or (450) 449-9774

☎ : 1 877 449-9115 or (450) 449-1349

Info@delta.xfo.com www.Delta.xfo.com



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Reference # : Project : Date :

Order # : Delivery date:

Client
Name & address

Contact

Tel. :

Fax :

User
Name & address

Contact

Tel. :

Fax :

CHARACTERISTICS

Catalogue # :

Model # :

Serial # :

KVA of the transformer : **KVA**

Primary : **V**

Secondary : **V**

Sound level measurement at 12 inches from the unit, half height of the unit, from 4 faces of unit if possible.

Front <input type="text"/>	Left side <input type="text"/>	Back <input type="text"/>	Right side <input type="text"/>
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Sound level measurement at 18 inches from the unit, half height of the unit, from 4 faces of unit if possible.

Front <input type="text"/>	Left side <input type="text"/>	Back <input type="text"/>	Right side <input type="text"/>
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Any sound reflecting surface next to transformer?

Describe type of sound reflecting surfaces.

Describe type of transformer mounting floor/pad/base.

Is the unit sitting on anti-vibration pads?

Is the unit sitting on a level floor/pad/base?

What type of noise: "Hum" or "Rattle"?

Feeling of any vibration on the enclosure or metallic parts?

Is the vibration transferred to conduit or adjacent equipment?

When applying pressure on any surface of enclosure does this change noise level?

When applying pressure on any surface of conduit or adjacent equipment does this change noise level?

Once front panel is removed, is the input voltage in accordance with selected voltage tap?

Same voltage tap on each winding?

What type of load is the unit feeding?

Any excessive tension between cables and terminations?

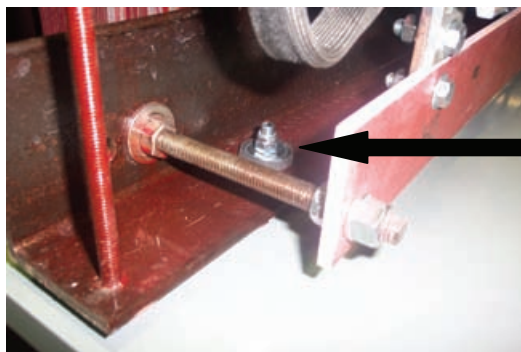
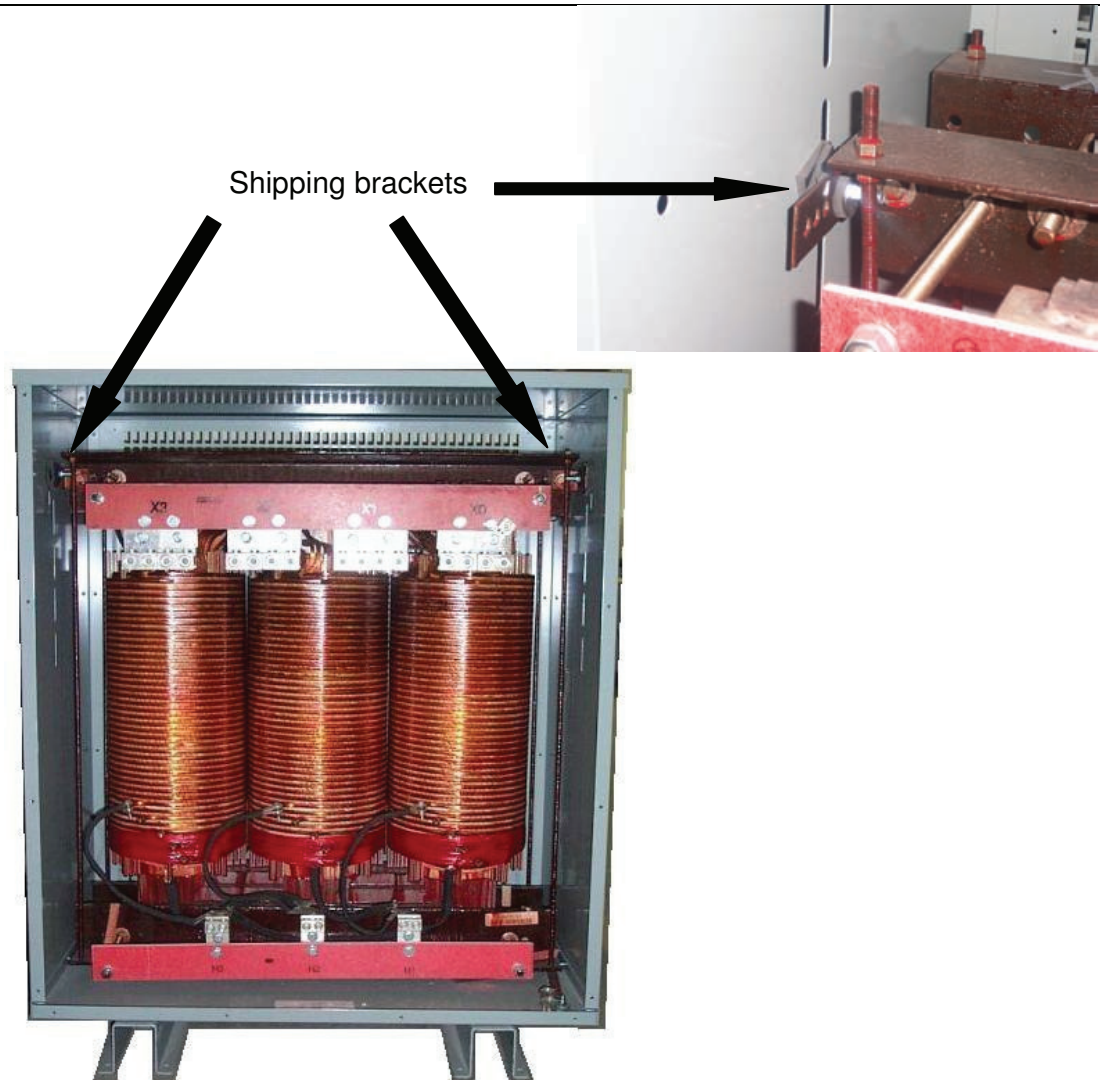
Shipping brackets located at the top of core & coil removed. Any change in noise?

Anti-vibration pads located between transformer & enclosure must not be compressed, loosen up the four anchoring bolts until no visible excessive compression on the pads. Any change in noise?

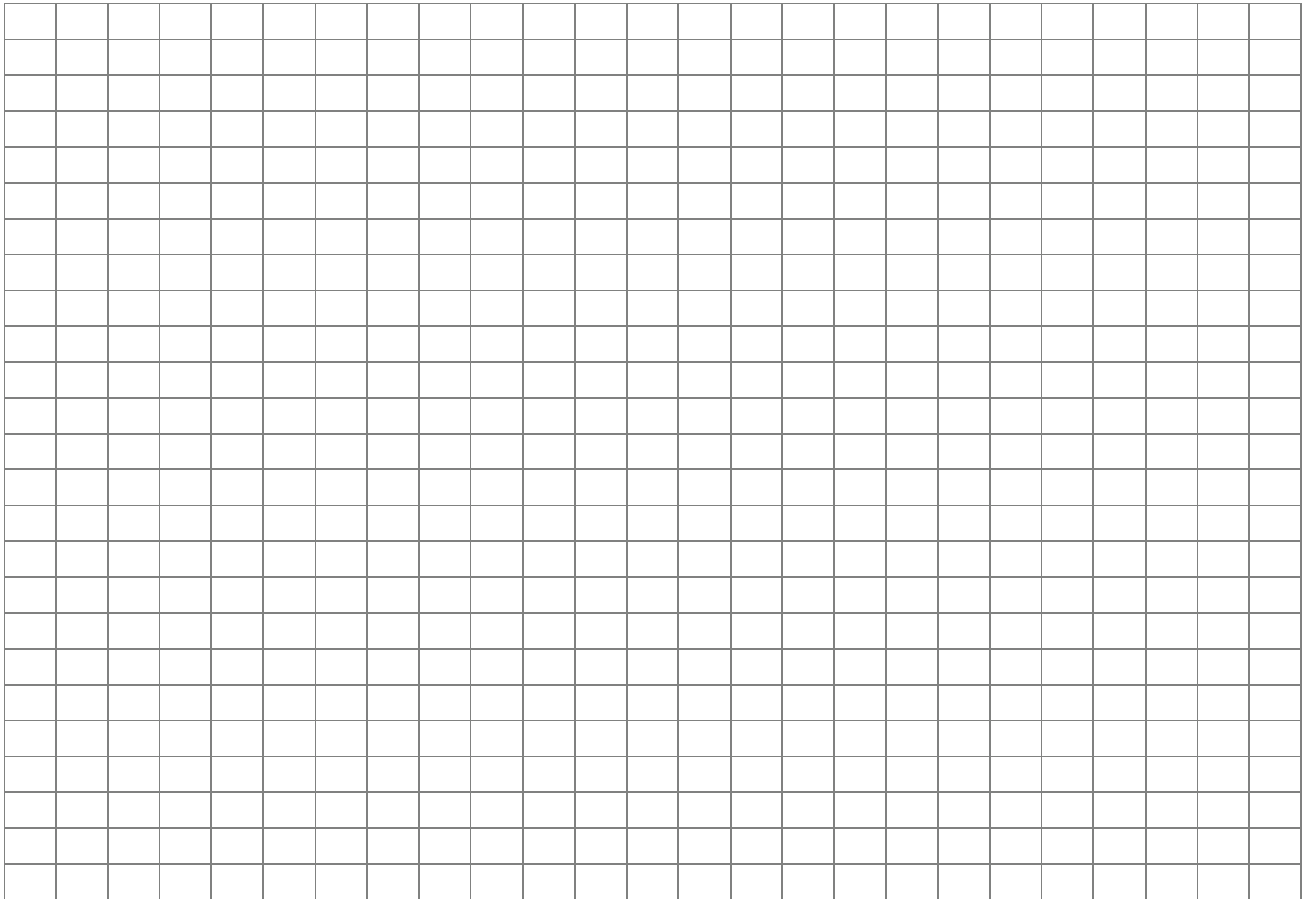
All screws, bolts, connectors and terminations of the assembly verified for tightness. Any change in noise?

Comments / Observations

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EXEMPLE

