



Ducted Systems Technical Services Service Letter

Letter: **YS-001-2020**

Date: March 6, 2020

To: Ducted Systems (Factory Direct) S1 HVAC Branch Service, Sales, Warranty Managers
Ducted Systems (UPG/Applied) Distribution Service, Sales, Warranty Managers

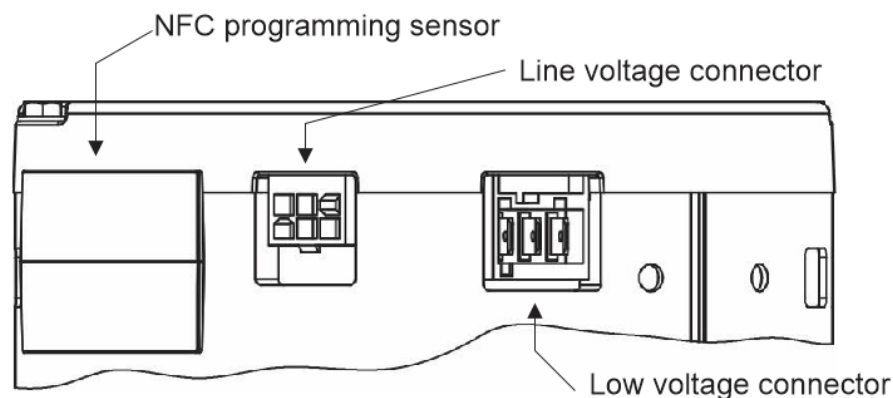
Subject: **Blower motor location in belly-band – Regal Beloit Ensite® Blower Motors**

Product: **TM8X, TMLX, TM9X, TM9E, TM9Y, RGF19*E, RGF29*E, RGF1L*E, RGF2L*E, MM9E**

Effective: **March 6, 2020** Expires: **March 6, 2021**

Summary: **This letter provides explanation and resolution for excessive blower motor noise complaints resulting from improper blower motor location in the motor belly-band.**

During 2019 some furnace blower motors have been changed from Regal Beloit EnduraPro® motor to the Regal Beloit Ensite® motor as the EnduraPro® is being phased out. The Ensite® motor has several unique features to differentiate it from the EnduraPro®. The motor is lighter in weight, has better performance, can be programmed using NFC (near field communications) and the electrical connections are on smaller simple connectors in lieu of individual speed tap connectors. The Ensite motor can be easily identified by its unique electrical connections. An image of the Ensite motor connections is shown below.

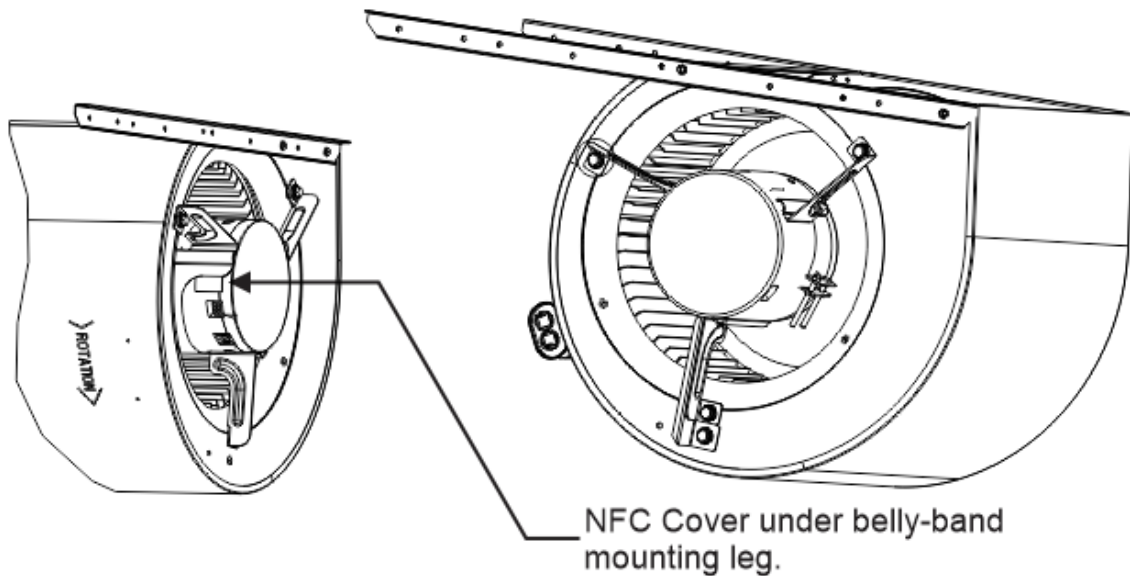


We began to receive complaints of “excessive blower motor noise” on furnaces containing the Ensite® motor. Further investigation revealed several reasons leading to excessive noise from the furnace blower motor.

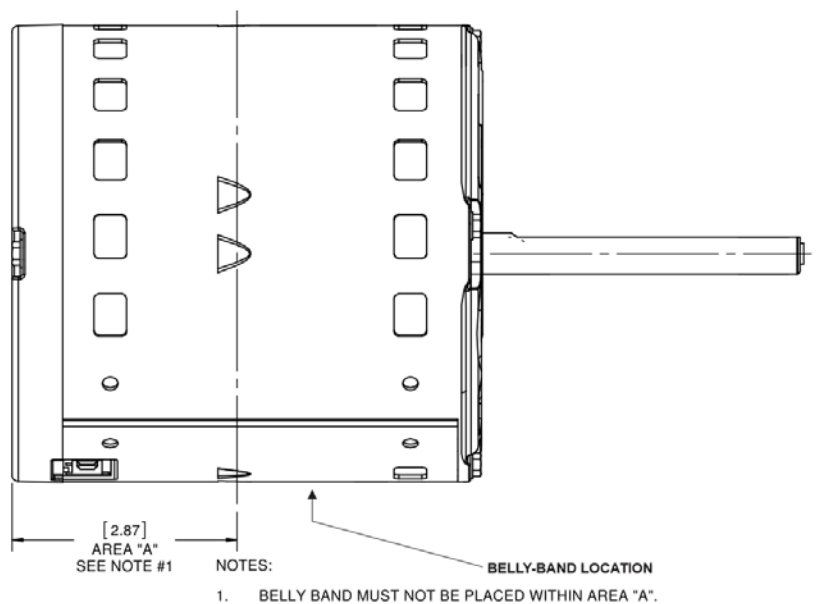
One reason for excessive blower motor noise is related to improper duct systems/installations resulting in excessive external static pressure. The “base model” furnace used to contain a PSC (permanent split capacitor) motor. In July 2019, DOE (Department of Energy) Fan Efficiency Rule (FER) went into effect and residential gas furnaces could no longer be built using PSC motors. Due to this rule, the “base model”

furnace is now the standard ECM model furnace. As external static pressure increases, a PSC motor simply does less work – moves less air, draws less electrical current, and the natural result is less noise. Standard ECM motors are constant torque motors. When a standard ECM model furnace is applied in the same scenario as above, the motor will attempt to achieve its programmed torque on the speed tap being utilized. The motor will attempt to move the air it is being asked to move. Excessive external static pressure results in excessive current draw and the natural result is more noise. Due to FER, furnace installations now have the standard ECM motor. A customer that is used to the behavior and noise associated with PSC motor equipment may now be forced to resolve issues external to the furnace such as undersized air filters, undersized and / or improperly installed duct systems.

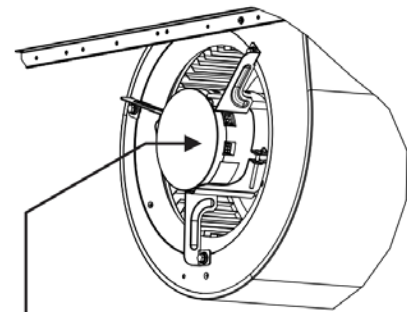
Another reason we found causing excessive blower motor noise is related to some of the motors not being installed correctly in their belly-band mounting assembly during furnace production. The Ensite® motor has a white plastic cover over the NFC programming sensor as shown in the image above. In some cases, the motor belly-band must be relocated/repositioned on the motor. Shown below is an assembly drawing of the motor, belly-band and blower assembly. Notice that the NFC cover is under one of the belly-band mounting legs. When the belly-band is in this position, the motor is not square with the blower assembly and this can lead to excessive noise.



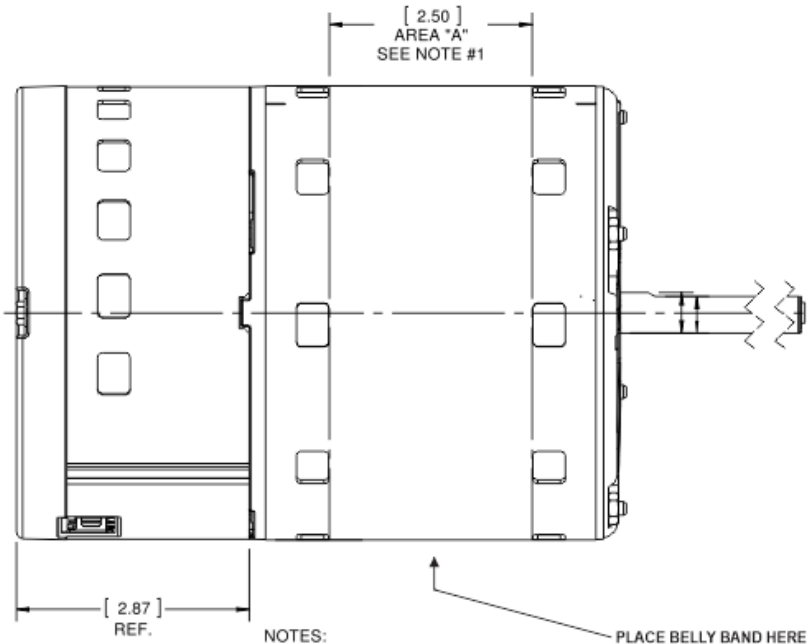
For ½ and ¾ horsepower motors, the belly-band **is** in the correct location in relationship to the end of the motor (location shown in the image to the right) but the motor must be rotated so that the NFC and electrical connections are in the area where the belly-band clamp bolts are located. Shown below is an assembly drawing of the blower assembly showing the blower motor NFC cover and electrical connections after the motor has been rotated in the belly-band. Notice the connections are in the section of the belly-band where the clamp bolts are located.



For 1 horsepower motors, the belly band needs to be adjusted so that it is within the appropriate area on the motor. The belly-band must be adjusted toward the shaft end of the motor. Reference the image below showing the correct location of the motor belly-band. The belly-band must be moved into area “A” as shown below.



NFC Cover and electrical connections between belly-band clamp area.



NOTES:
 1. BELLY BAND MUST BE PLACED WITHIN AREA "A".

Implementation of the Ensite® motor began in early 2019. Some models/tonnages have not yet been changed to the Ensite® motor. However, the belly-band location issue described above was resolved in factory production sometime in December 2019, therefore, the issue described above may be (but not always) found in furnaces containing the Ensite® motor within serial range W1B9 – W1N9.

commissioning, the blower motor should be checked to identify if it is an Ensite® motor and then if so, position of the motor in the belly-band as described above. If the motor is in the incorrect location, slide the blower assembly from the furnace, re-locate the motor in the belly-band and re-install the blower assembly. Take external static pressure readings and adjust blower motor speed per the unit installation manual. If excessive external static is present, the customer may need to make duct system modifications.

If an excessive noise issue is found during furnace installation and

This letter is to be used on a **fix-on-fail** basis only and will allow one hour labor to re-position the blower motor in the belly-band. File a warranty claim using the service letter number. The warranty claim must include the invoice from the servicing dealer.

If you have any questions on this feel free to call 855-251-8267.