

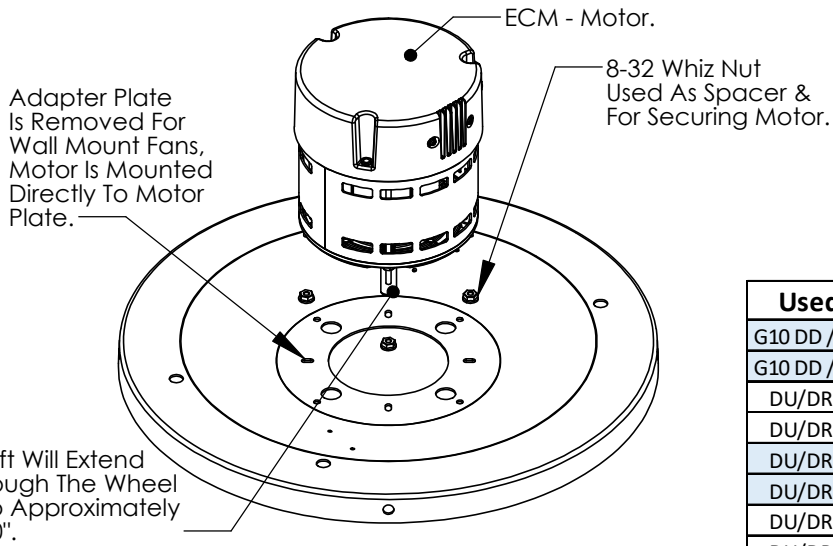
ECM Assembly

Details

07/20/2018

EC Motor Summary

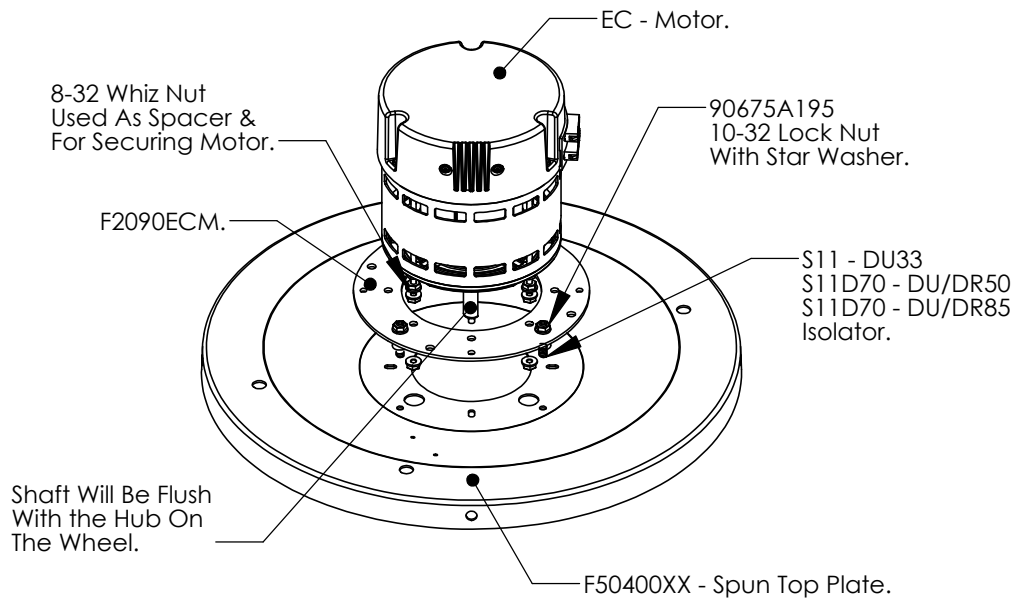
EXHAUST FAN ECM WALL MOUNT ASSEMBLY.



EC Motors on DU/DR 10 and 12 mount directly to the top plates without isolators or adapter plate.

EXHAUST FAN ECM ASSEMBLY.

**DO NOT USE S11 ISOLATORS ON DR33HFA
USE WALL MOUNT ASSEMBLY**

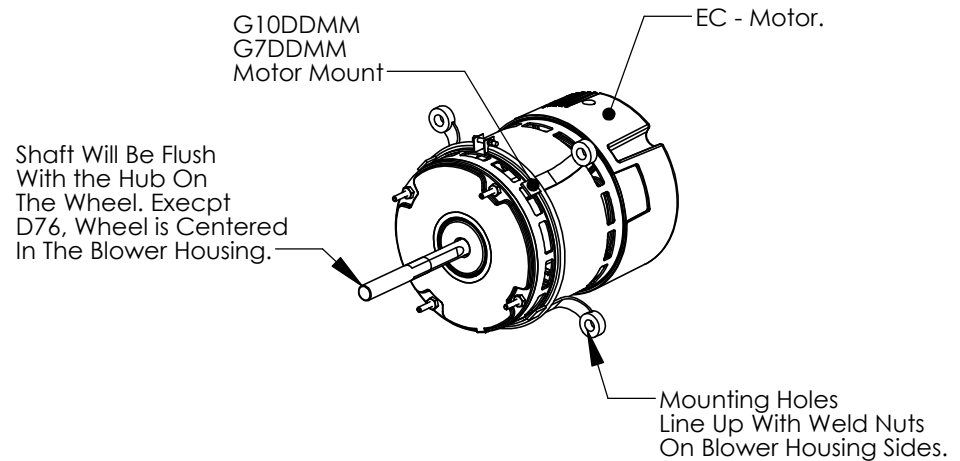


Revision History

#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Add Ziehl Motors	PEM	2945	7/20/18

Used On	Motor #	HP	Voltage	Amps	HZ	RPM	Shaft Dia	Shaft Length	# Flats
G10 DD / D76 DD	8400 - ECM	1.0	120 / 240	10.2 / 6.1	50/60	1800	0.5	4.875	1
G10 DD / D76 DD	BMN48-75011	1.0	115/ 230-277	11.6/ 6.5-5.5	50/60	1800	0.5	4.875	1
DU/DR85HFA	6251R - ECM	3/4	120 / 240	8.8 / 5.2	50/60	1800	0.5	3.250	2
DU/DR85HFA	BMN48-56011	3/4	115/ 230-277	8.9/ 5.0-4.2	50/60	1800	0.5	3.250	2
DU/DR50HFA	6311R - ECM	1/2	120 / 240	5.6 / 3.2	50/60	1800	0.5	3.500	2
DU/DR50HFA	BMN48-37511	1/2	115/ 230-277	6.3/ 3.5-3.3	50/60	1800	0.5	3.500	2
DU/DR33HFA	6310R - ECM	1/3	120 / 240	4.4 / 2.6	50/60	1800	0.5	3.250	2
DU/DR33HFA	BMN48-25011	1/3	115/ 230-277	4.3/ 2.4-2.2	50/60	1800	0.5	3.250	2
DU/DR12HFA	M047PWAAD-ECM	1/4	120/ 240	3.7/2.5	50/60	1800	0.5	3.25	2
DU/DR10HFA	M047PWAAE-ECM	1/8	120/ 240	1.9/1.3	50/60	1800	0.375	2.250	2

MUA DD & HMUA DD / FAN ECM ASSEMBLY.



Material: N/A
Blank Size: N/A x N/A
Weight: N/A lbs

Part Number: See Above
MACOLA/AX Number: See Above
Drawing Name: ECM Assembly Details
Drawn By: N Perry
Parent Assembly: ECM Motor Details
Sheet: 2 of 9

Unless Otherwise Specified
Dimensions are in Inches.

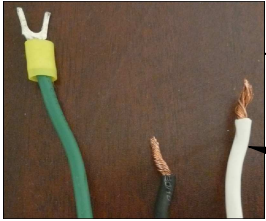
Standard Tolerances are:
Fractions: ±1/16
Decimal: .XX ±.05
.XXX ±.015
Angles: ±1°

CONFIDENTIAL

Nidec-ECM-WIRE-HARNESS - Wiring Instructions For Exhaust & Untempered

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Added Ziehl Motors	PEM	2945	7/20/18

Connection 1 - Fan Disconnect To Handy Box



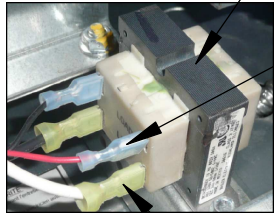
SO/SJ Cord from disconnect is wired to the ECM wire harness in speed control handy box. For exhaust fans without exterior disconnect switches, run the black and white power wires from the speed control handy box to the disconnect switch.

EC motors are dual voltage 240/120Vac. Wrap one ring of red electrical tape around white wire when wired for 240Vac.

Connection 2 - Transformer

Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Secure to fan using self drilling screws, 2 places.

240Vac to 24Vac - Part number BE241620GEK - Basler.
120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

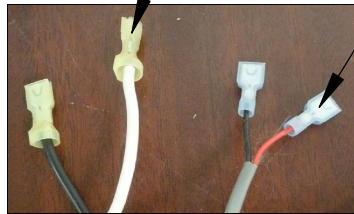


Secondary 24Vac

Select Primary Voltage, ECM motors are dual voltage 240/120, wrap one ring of red electrical tape around white wire when wired for 240Vac.

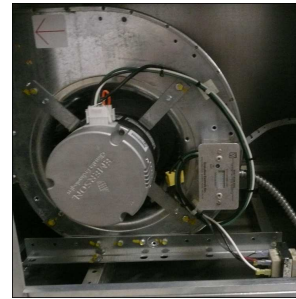
Secondary voltage is 24Vac, connect the EVO/ECM - VCU to the 24Vac secondary voltage.

Primary 240/120Vac



12 Prong Connector is used for 1/8 and 1/4 HP ECM and is replaces other two connectors

ECM - G10 DD



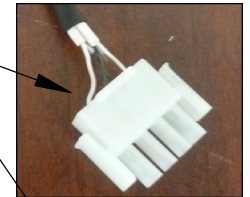
ECM - DU/DRHFA



Connection 4 - Power & Communication

4 Pin communication connector from the EVO/ECM is connected to the ECM motor.

5 Pin power connector is connected to the motor. Wrap one ring of red electrical tape around white wire when wired for 240Vac.



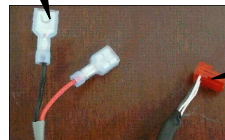
Connection 3 - EVO/ECM-VCU-36-MP



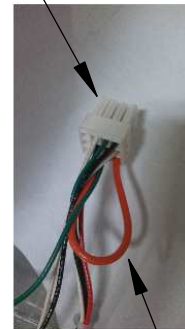
EVO/ECM-VCU-36-MP Speed control used to control the ECM motor RPM, fan adjustment and RPM display. **Speed is set to 100% - Max RPM during QC.**



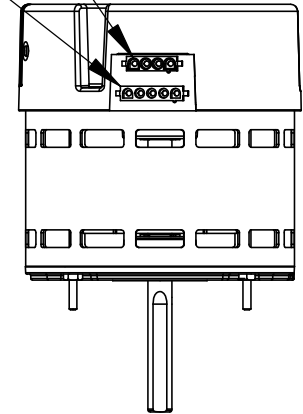
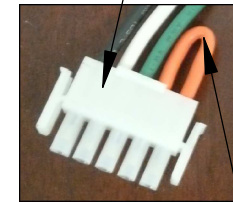
24Vac from the transformer is connected to the back side of the EVO/ECM.



4 Pin connector from the motor is connected to the back side of the EVO/ECM.



Orange Jumper is removed for 240Vac.



Material: N/A
Blank Size: N/A x N/A
Weight: N/A lbs

Part Number: N/A
MACOLA/AX Number: N/A
Drawing Name: ECM Assembly Details
Drawn By: N Perry
Parent Assembly: ECM Assembly Details
Sheet: 3 of 9

Unless Otherwise Specified
Dimensions are in Inches.

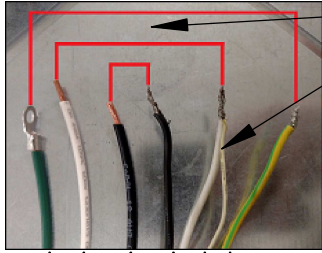
Standard Tolerances are:
Fractions: $\pm 1/16$
Decimal: $.XX \pm .05$
 $.XXX \pm .015$
Angles: $\pm 1^\circ$

CONFIDENTIAL

Telco-ECM-WIRE-HARNESS - Wiring Instructions For Exhaust & Untempered

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Added Zeihl Motors	PEM	2945	7/20/18

Connection 1 - Fan Disconnect To Handy Box and Motor Power



SO/SJ Cord from disconnect is wired to the ECM wire harness and motor wiring in speed control handy box.

The Telco ECM has a 22AWG white wire that controls rotation direction. For exhaust fans, the white wire is wire-nutted with the larger white wire from the motor, the white wire from the harness, and the white wire from the incoming power.

Wiring from Harness

Wiring from Motor Lead

Connection 2 - Transformer

Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Secure to fan using self drilling screws, 2 places.

240Vac to 24Vac - Part number BE241 620GEK - Basler.
120Vac to 24Vac - Part number BE141 620GEK0032 - Basler.

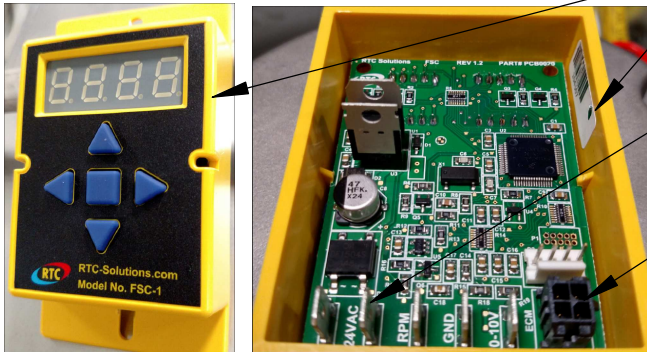
Secondary 24Vac

Select Primary Voltage, EC motors are available at 115 / 230-277V, wrap one ring of red electrical tape around white wire when wired for 230-277Vac.

Secondary voltage is 24Vac, connect the ECM-VCU-RTC to the 24Vac secondary voltage.

Primary 240/120Vac

Connection 3 - ECM-VCU-RTC



Speed control used to control the EC motor RPM, fan adjustment and RPM display.
Speed is set to 100% - Max RPM during QC.

24Vac from the transformer is connected to the back side of the RTC.

The black connector included in the motor harness is plugged directly into the board. This connector only fits one way.

ECM - G10 DD



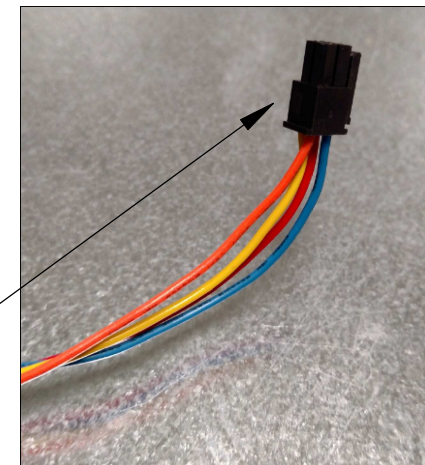
ECM - DU/DRHFA



Wire Harness Part Number - ECM-WIRE HARNESS ECM-WIRE HARNESS Used On Exhaust & MUA DD Only

Connection 4 - Communication

Since the motor has its own connector, the power and communication connectors on the ECM-Harness can be left unconnected. Zip-tie these connectors so that they will not interfere with the motor or other wiring.



Material:

Blank Size: x

Weight: lbs

Part Number:

MACOLA/AX Number:

Drawing Name: ECM Assembly Details

Drawn By:

Parent Assembly:

Sheet: 4 of 9

Unless Otherwise Specified
Dimensions are in Inches.

Standard Tolerances are:

Fractions: ±1/16

Decimal: .XX ±.05

.XXX ±.015

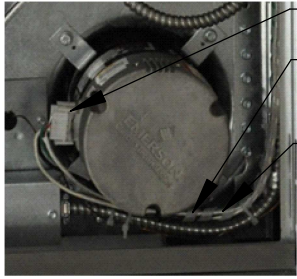
Angles: ±1°

CONFIDENTIAL

Nidec-ECM-WIRE-HARNESS-HMUA - Wiring Instructions For HMUA

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Added Ziehl Motors	PEM	2945	7/20/18

Connection 1 - Power & Communication Connectors From Motor



Orientate the motor so the connectors are installed on the left side of the motor, minimize exposure to heat.

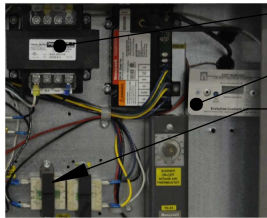
ECM-Harness-HMUA, the portion that is exposed to heat is sealed in Galflex run the harness on the outside of the motor and secure to the blower support brackets.

A 3/8" 90 degree connector is used to secure the harness as it comes through the electric cabinet back, anti shorts must be used.

Wire Harness Part Number - ECM-WIRE HARNESS-HMUA Used On ECM DD HMUA Only. ECM - D76DD & G10DD - HMUA



Connection 2 - Transformer Secondary 24Vac to the VCU, Red = 24Vac / Black = Neutral



Primary voltage 240Vac, taken from unit transformer.
Primary voltage 120Vac, taken from terminal strip.

24Vac from transformer to VCU.

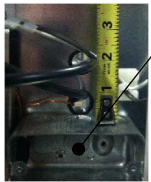
Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Transformer is installed on the electric board.

240Vac to 24Vac - Part number BE241620GEK - Basler.
120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

Cut Insulation On Motor Side Door D76DD HMUA Only

Connection 5 - Power & Communication

Connection 3 - EVO/ECM-VCU-36-MP

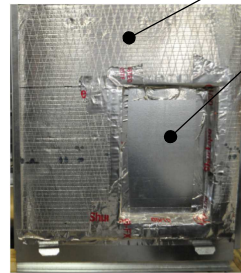


The VCU is installed into a handy box, part number 58371-1/2. The VCU should be installed on the electric board when ever possible. The box is installed to the right of the electric board when installation on the electric board isn't possible, 4.5" down from the top of the electric cabinet back. The box should be just below the intake air bulb knock out.

Rivets are used to secure the box, sheet metal screws may interfere with the damper.



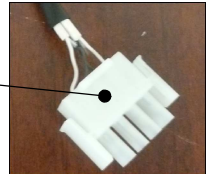
EVO/ECM-VCU-36-MP Speed control used to control the EC motor RPM, fan adjustment and RPM display.
Speed is set to 100% - Max RPM during QC.



D76 motor side door.

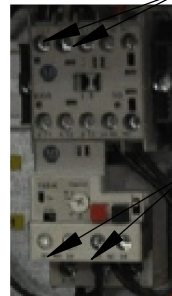
Cut Insulation on motor side door.
Right side 2 1/2".
Right to Left 7".
Up from door hooks 11".
Remove insulation and cover with tape.

4 Pin communication connector from the EVO/ECM is connected to the ECM motor.



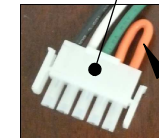
5 Pin power connector is connected to the motor. Wrap one ring of red electrical tape around white wire when wired for 240Vac.

Connection 4 - Starter & Overload

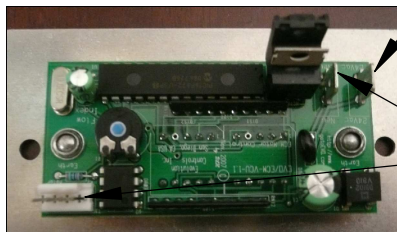
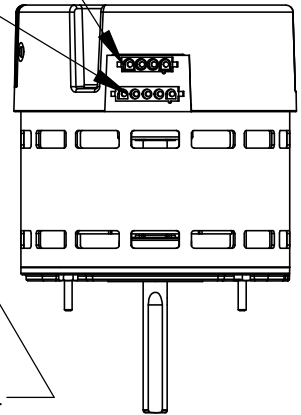


Connect black & white wires from disconnect to.
L1 = Black.
L2 = White/120Vac.
L2 = Red/240Vac.

Connect black & white wires from motor to.
T1 = Black.
T3 = White/120Vac.
T3 = Red/240Vac.



Orange Jumper is removed for 240Vac.



Red = 24Vac from transformer.
Black = Neutral from transformer.
4 pin communication connector from motor.

Material: N/A
Blank Size: N/A x N/A
Weight: N/A lbs

Part Number: N/A
MACOLA/AX Number: N/A
Drawing Name: ECM Assembly Details
Drawn By: N Perry
Parent Assembly: ECM Assembly Details
Sheet: 5 of 9

Unless Otherwise Specified
Dimensions are in Inches.

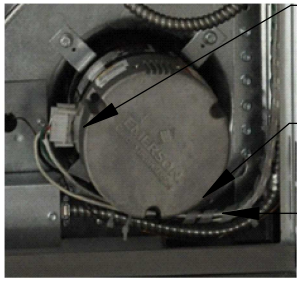
Standard Tolerances are:
Fractions: ±1/16
Decimal: .XX ±.05
.XXX ±.015
Angles: ±1°

CONFIDENTIAL

Telco-ECM-WIRE-HARNESS-HMUA - Wiring Instructions For HMUA

Revision History				
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0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Added Ziehl Motors	PEM	2945	7/20/18

Connection 1 - Power & Communication Connectors From Motor



Nidec Motor Shown. Orientate the motor so the wiring is on the left side to minimize exposure to heat. Connect the motor wiring to the harness: **ECM-Harness-HMUA-Telco** inside a j-box with blank cover. Use high temp wire nuts to connect the power wires.

ECM-Harness-HMUA-Telco, the portion that is exposed to heat is sealed in Galflex run the harness on the outside of the motor and secure to the blower support brackets.

A 3/8" 90 degree connector is used to secure the harness as it comes through the electric cabinet back, anti shorts must be used.

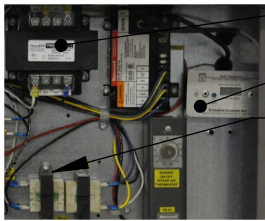
There is a 22AWG white wire from the motor that controls motor direction. Connect this wire with the white motor wire to spin the motor CCW from the non-load end. Connect this wire with the black motor wire to spin the motor CW from the non-load end.

Wire Harness Part Number - ECM-WIRE HARNESS-HMUA Used On ECM DD HMUA Only.

ECM - D76DD & G10DD - HMUA



Connection 2 - Transformer Secondary 24Vac to the VCU, Red = 24Vac / Black = Neutral



Primary voltage 240Vac, taken from unit transformer. Primary voltage 120Vac, taken from terminal strip.

24Vac from transformer to ECM-VCU-RTC (not shown).

Select the right transformer, the transformer should match the motor voltage 240Vac or 120Vac to 24Vac. Transformer part numbers are shown below. Transformer is installed on the electric board.

240Vac to 24Vac - Part number BE241620GEK - Basler.
120Vac to 24Vac - Part number BE141620GEK0032 - Basler.

Cut Insulation On Motor Side Door D76DD HMUA Only



D76 motor side door.

Cut insulation on motor side door. Right side 2 1/2". Right to Left 7". Up from door hooks 11". Remove insulation and cover with tape.

Connection 3 - ECM-VCU-RTC



The VCU is installed into a handy box, part number 58371-1/2. The VCU should be installed on the electric board when ever possible. The box is installed to the right of the electric board when installation on the electric board isn't possible, 4.5" down from the top of the electric cabinet back. The box should be just below the intake air bulb knock out.

Rivets are used to secure the box, sheet metal screws may interfere with the damper.

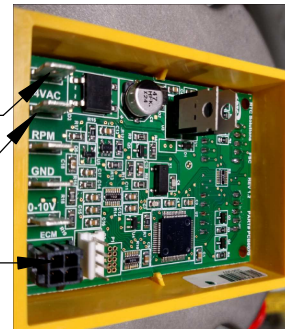


ECM-VCU-RTC Speed control used to control the Telco EC motor RPM, fan adjustment and RPM display. **Speed is set to 100% - Max RPM during QC.**

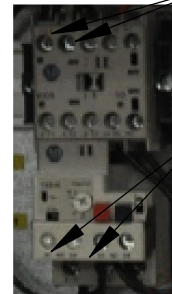
Black = Neutral from transformer.

Red = 24Vac from transformer.

4 pin communication connector from motor.



Connection 4 - Starter & Overload



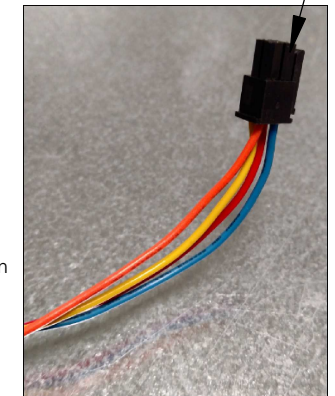
Connect black & white wires from disconnect to.
L1 = Black.
L2 = White/120Vac.
L2 = Red/240Vac.

Connect black & white 16AWG wires from motor to.
T1 = Black.
T3 = White/120Vac.
T3 = Red/240Vac.

Connection 5 - Communication

The connector at the end of the motor lead connects to the HMUA harness. On the othe end of the harness, the black connector plugs into the RTC controller.

Connect the black connector from the harness into the ECM-VCU-RTC controller.



Material:

Blank Size: x

Weight: lbs

Part Number:

MACOLA/AX Number:

Drawing Name: ECM Assembly Details

Drawn By:

Parent Assembly:

Sheet: 6 of 9

Unless Otherwise Specified Dimensions are in Inches.

Standard Tolerances are:

Fractions: ±1/16

Decimal: .XX ±.05

.XXX ±.015

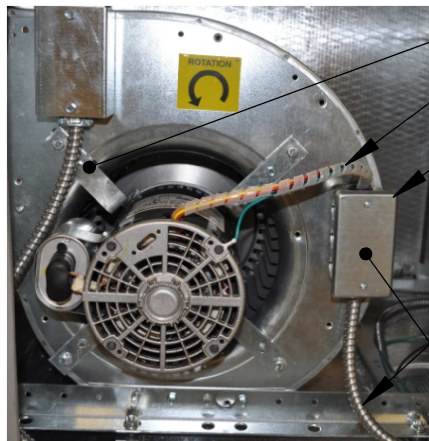
Angles: ±1°

CONFIDENTIAL

G10DD-HMUA - PSC Motor Wiring Instructions

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Added Ziehl Motors	PEM	2945	7/20/18

Connection 1 - Power The Motor

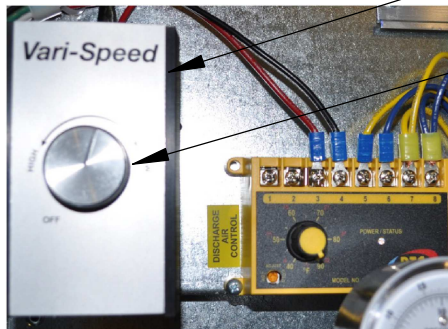


- Install the motor using BIDDMM motor mounts.
- Motor wires are wrapped and run to the handy box part number 58371-1/2.
- Wires are run from the motor to the overload
- Motor:
Wire per motor label as rotations will change per blower orientation.
- Overload:
Connect - white to T3.
Connect - black to T1.
- Wires exposed to heat are run through Galflex. Once wires are secured the handy box cover part number 58C30 is installed.

G10DD - HMUA

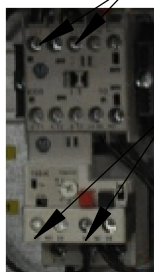


Connection 2 - Speed Control

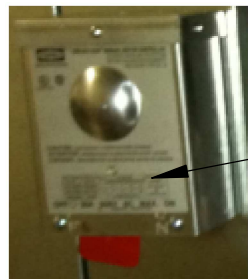


- Handy box part number 58371-1/2 is installed on the electric board. The handy box is installed on the lower left corner when possible.
- Speed controller part number KBWC-110K is used to control the speed of motor.
Minimum voltage is set to 65Vac during QC.

Connection 1 & 2 - Starter & Overload

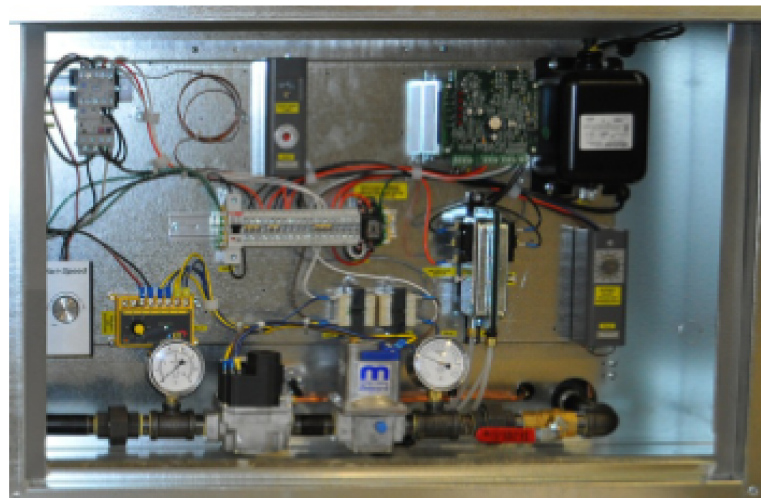


- Connect black & white wires from disconnect & speed control to.
L1 = Black from speed control.
L2 = White from main disconnect switch.
- Connect black & white wires from motor to.
T1 = Black.
T3 = White.



- Connect black & white wires from disconnect.
- Black wire from main disconnect to speed control.
- White wire from main disconnect to L2 on starter.

G10 DD HMUA - Standard Electric Board Layout



Material: N/A
Blank Size: N/A x N/A
Weight: N/A lbs

Part Number: N/A
MACOLA/AX Number: N/A
Drawing Name: ECM Assembly Details
Drawn By: N Perry
Parent Assembly: G10DD PSC HMUA Details
Sheet: 7 of 9

Unless Otherwise Specified
Dimensions are in Inches.

Standard Tolerances are:
Fractions: ±1/16
Decimal: .XX ±.05
.XXX ±.015
Angles: ±1°

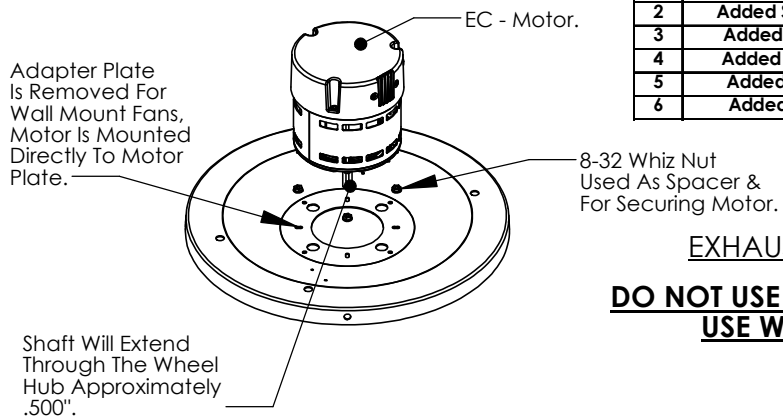
CONFIDENTIAL

ECM-KIT Installation Instructions

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
3	Added HMUA details	N Perry	2248	4/27/11
4	Added ECMs to 10/12	J Hess	2696	4/25/14
5	Added Telco Motors	J Hess	2812	3/14/16
6	Added Ziehl Motors	PEM	2945	7/20/18

- ECM kits are used to convert fans using PSC motors to EC motors.
- Review ECM kit number with details below. The kit number should match your fan number.
- Disconnect the power going to the fan.
- Remove the KB electronics speed control.
- Remove the PSC motor. If needed refer to the motor replacement instructions on ecommerce.
- Keep the hardware and isolators when removing the PSC motor.
- Isolators are not used on wall mount exhaust or with G10 DD MUA motor mount (built in).
- Make sure the wheel set screws are tightened up on the flats of the motor shaft.
- EC motors can be wired for 240Vac or 120Vac, verify primary voltage on the transformer.
- Attach the transformer to the Exhaust fan spun top plate using (2) 1/4-20 self drilling screws.
- Attach the transformer to the supply fan blower support using (2) 1/4-20 self drilling screws.
- Connect the black and white wires from the ECM wire harness to the SO or SJ cord from the fan disconnect. For **Telco** motors, also include the 16 AWG black and white wires (both 16 AWG and 22AWG white) from the motor lead to the harness and SO cord. Connect the ground to the grounding screw. Suitably sized wire nuts should be used, if the motor is being wired for 240Vac, the white wire should be marked using red electrical tape.
- Connect the ECM wire harness to the transformer. Connect the black and white wires (yellow terminal connectors) to the primary voltage. If the motor is being wired for 240Vac, the white wire should be marked using red electrical tape. Connect the black and red wires (blue terminal connectors) to the 24Vac secondary voltage.
- The other end of the black and red wires (blue terminal connectors) coming from the transformer secondary voltage 24Vac and the red 4 pin connector need to go to the junction to be connected to the VCU Controller. For **Telco** motors, the black 4 pin connector is at the end of the motor lead. Leave the red 4pin connector disconnected. Once connected the controller is secured to the junction box using screws.
- Connect the ECM wire harness to the Nidec motor. The 5 pin power connector is connected to the Nidec motor. The orange jumper is removed for 240Vac. If the motor is being wired for 240Vac the white wire should be marked using red electrical tape. **If the motor is 1/8 or 1/4 HP, there will only be one 12-prong connector to plug into the motor.** For **Telco** motors, the power connector on the harness can be left disconnected.
- Connect the ECM wire harness to the Nidec motor; the 4 pin communication connector is connected to the motor. For **Telco** motors, this connector can be left disconnected.
- Check all connections to make sure they are secure; the ECM wire harness should be free from moving parts. Secure the ECM wire harness to the exhaust fan top plate or MUA blower housing using cable ties.
- Once the power is reconnected and the fan disconnect switch is turned on the VCU Controller will display the motor RPM. When the fan disconnect switch is turned on the VCU Controller will display the motor RPM, you can make adjustments to the motor RPM by adjusting the screw to the left of the display on the EVO and the blue up and down buttons on the RTC controller.
- See HMUA wire harness for HMUA kit wiring instructions.

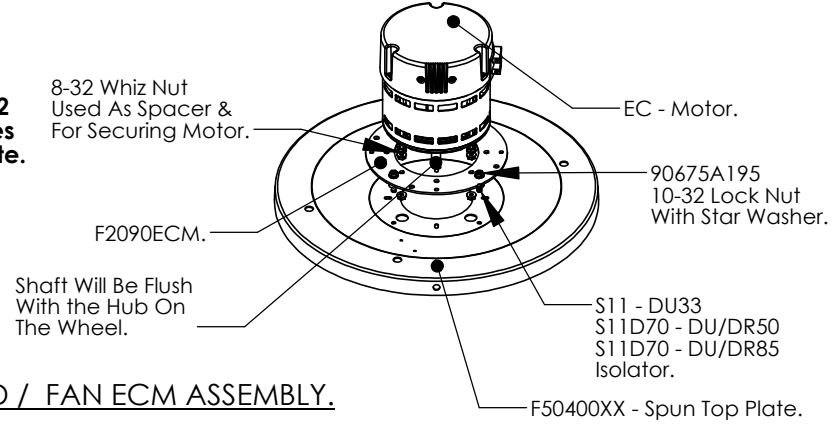
EXHAUST FAN ECM WALL MOUNT ASSEMBLY.



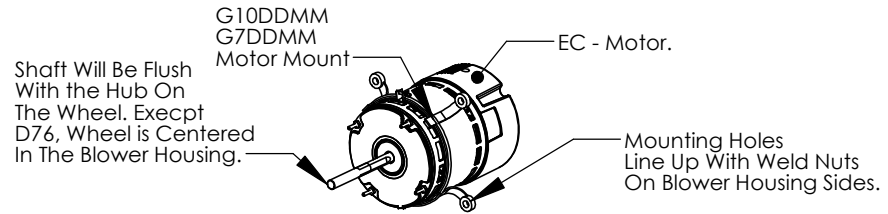
EC Motors on DU/DR 10 and 12 mount directly to the top plates without isolators or adapter plate.

EXHAUST FAN ECM ASSEMBLY.

DO NOT USE S11 ISOLATORS ON DR33HFA USE WALL MOUNT ASSEMBLY



MUA DD & HMUA DD / FAN ECM ASSEMBLY.

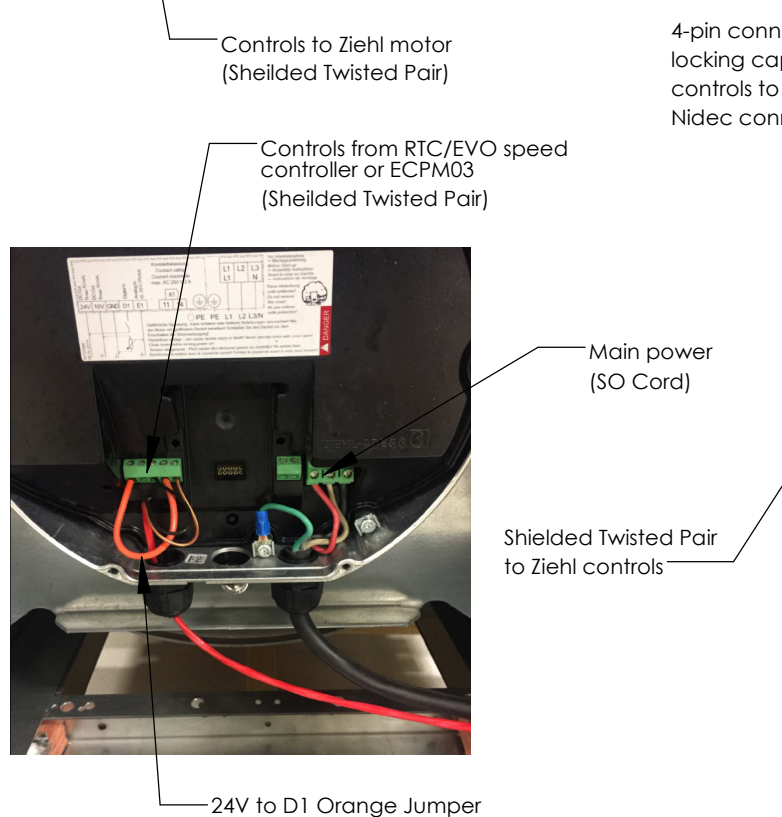
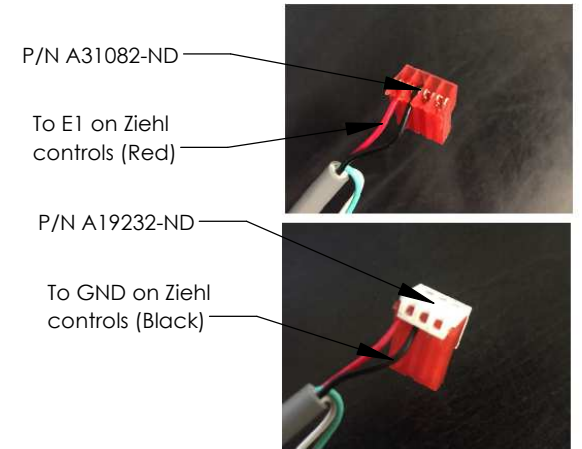
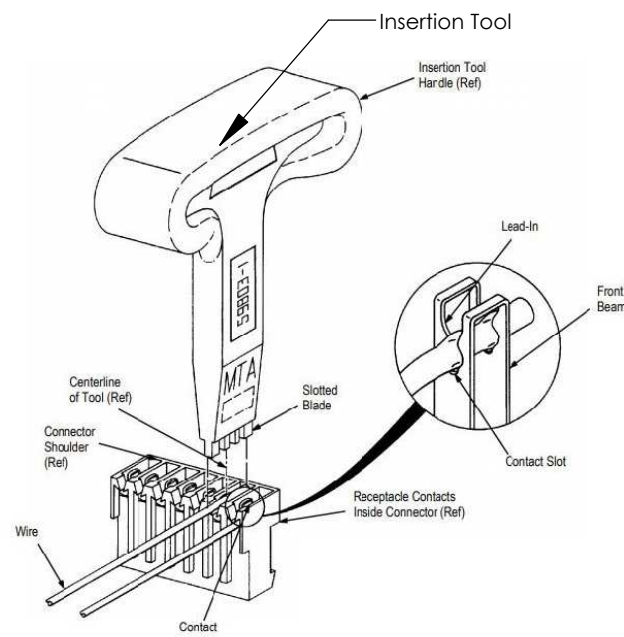
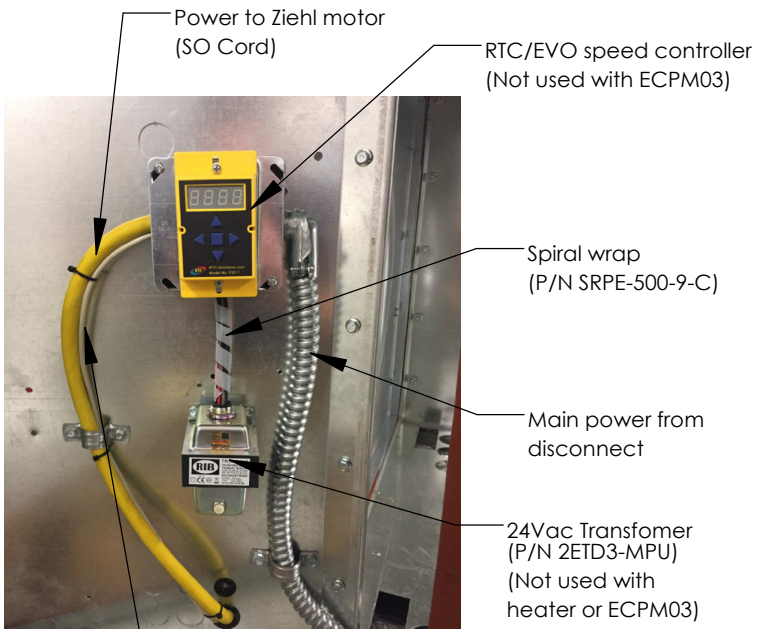


Used On	Kit Part #	HP	Motor	Qty	Speed Control	Qty	Wire Harness	Qty	Transformer	Qty	Motor/Adp Plate	Qty	8-32 Whiz Nuts	Qty	1/4-20 x 3/4 Whiz Nut	Qty	#12-14 x 3/4 Self Drilling	Qty
G10 DD HMUA	ECM-KIT-G10DD-HMUA-120V (-TEAO)	1	M055CUC0315-ECM-60 (BMN48-75011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness-HMUA(-Telco)	1	BE141620GEK0032	1	G10DDMM	2	800036	8	800044	4	31817	6
D76 DD HMUA	ECM-KIT-D76DD-HMUA-120V (-TEAO)	1	M055CUC0315-ECM-60 (BMN48-75011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness-HMUA(-Telco)	1	BE141620GEK0032	1	G7DDMM	2	800036	8	800044	4	31817	6
G10 DD	ECM-KIT-G10DD-120V (-TEAO)	1	M055CUC0315-ECM-60 (BMN48-75011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE141620GEK0032	1	G10DDMM	2	800036	8	800044	4	31817	6
DU/DR85HFA	ECM-KIT-85-120V (-TEAO)	3/4	M055CUL0316-ECM-60 (BMN48-56011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE141620GEK0032	1	F2090ECM	1	800036	8	N/A	0	31817	4
DU/DR50HFA	ECM-KIT-50-120V (-TEAO)	1/2	M055CUM0317-ECM-60 (BMN48-37511-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE141620GEK0032	1	F2090ECM	1	800036	8	N/A	0	31817	4
DU/DR33HFA	ECM-KIT-33-120V (-TEAO)	1/3	M055CUN0318-ECM-60 (BMN48-25011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE141620GEK0032	1	F2090ECM	1	800036	8	N/A	0	31817	4
DU/DR12HFA	ECM-KIT-12-120V	1/4	M047PWAAD-ECM-60	1	EVO/ECM-VCU-36-MP	1	ECM-Harness-120mm	1	BE141620GEK0032	1	N/A	1	800036	8	N/A	0	31817	4
DU/DR10HFA	ECM-KIT-10-120V	1/8	M047PWAEE-ECM-60	1	EVO/ECM-VCU-36-MP	1	ECM-Harness-120mm	1	BE141620GEK0032	1	N/A	1	800036	8	N/A	0	31817	4
G10 DD HMUA	ECM-KIT-G10DD-HMUA-240V (-TEAO)	1	M055CUC0315-ECM-60 (BMN48-75011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness-HMUA(-Telco)	1	BE241620GEK	1	G10DDMM	2	800036	8	800044	4	31817	6
D76 DD HMUA	ECM-KIT-D76DD-HMUA-240V (-TEAO)	1	M055CUC0315-ECM-60 (BMN48-75011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness-HMUA(-Telco)	1	BE241620GEK	1	G7DDMM	2	800036	8	800044	4	31817	6
G10 DD	ECM-KIT-G10DD-240V (-TEAO)	1	M055CUC0315-ECM-60 (BMN48-75011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE241620GEK	1	G10DDMM	2	800036	8	800044	4	31817	6
DU/DR85HFA	ECM-KIT-85-240V (-TEAO)	3/4	M055CUL0316-ECM-60 (BMN48-56011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE241620GEK	1	F2090ECM	1	800036	8	N/A	0	31817	4
DU/DR50HFA	ECM-KIT-50-240V (-TEAO)	1/2	M055CUM0317-ECM-60 (BMN48-37511-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE241620GEK	1	F2090ECM	1	800036	8	N/A	0	31817	4
DU/DR33HFA	ECM-KIT-33-240V (-TEAO)	1/3	M055CUN0318-ECM-60 (BMN48-25011-60)	1	EVO/ECM-VCU-36-MP (ECM-VCU-RTC)	1	ECM-Harness	1	BE241620GEK	1	F2090ECM	1	800036	8	N/A	0	31817	4
DU/DR12HFA	ECM-KIT-12-240V	1/4	M047PWAAD-ECM-60	1	EVO/ECM-VCU-36-MP	1	ECM-Harness-120mm	1	BE241620GEK	1	N/A	1	800036	8	N/A	0	31817	4
DU/DR10HFA	ECM-KIT-10-240V	1/8	M047PWAEE-ECM-60	1	EVO/ECM-VCU-36-MP	1	ECM-Harness-120mm	1	BE241620GEK	1	N/A	1	800036	8	N/A	0	31817	4

Parts in parenthesis are for TEAO EC motors.

High Efficiency Ziehl-Abegg Installation Instructions

Revision History				
#	Description	Revised by	ECN#	Date
0	Released to production	N Perry	1527	3/24/10
1	ECM Transformer Update	N Perry	1964	3/31/10
2	Added S11D70 Isolator	N Perry	2149	9/15/10
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5	Added Telco Motors	J Hess	2812	3/14/16
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4-pin connector (P/N A31082-ND) & locking cap (P/N A19232-ND) for controls to Ziehl motor. Plugged into Nidec connection on RTC controller

