ENVIRO-TEC®

MODEL VB/VR VERTICAL BELT DRIVE BLOWER COIL UNITS

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

IOM-BCUBD
March, 2002
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Largo, FL • Part No. PX-00-0144

SAFETY CONSIDERATIONS

The equipment covered by this manual is designed for safe and reliable operation when installed and operated within its design specification limits. To avoid personal injury or damage to equipment or property while installing or operating this equipment, it is essential that qualified, experienced personnel perform these functions using good judgement and safe practices. See the following cautionary statements.

DANGER

ELECTRICAL SHOCK HAZARDS. All power must be disconnected prior to installation and serving this equipment. More than one source of power may be present. Disconnect all power sources to avoid electrocution or shock injuries.

MOVING PARTS HAZARDS. Motor and Blower must be disconnected prior to opening access panels. Motors can start automatically, disconnect all power and control circuits prior to servicing to avoid serious crushing or dismemberment injuries.

HOT PARTS HAZARDS. Electric Resistance heating elements must be disconnected prior to servicing. Electric Heaters may start automatically, disconnect all power and control circuits prior to servicing to avoid burns.

WARNING

Check that the unit assembly and component weights can be safely supported by rigging and lifting equipment.

All assemblies must be adequately secured during lifting and rigging by temporary supports and restraints until equipment is permanently fastened and set in its final location.

All unit temporary and permanent supports must be capable of safely supporting the equipment's weight and any additional live or dead loads that may be encountered. All supports must be designed to meet applicable local codes and ordinances.

All fastening devices must be designed to mechanically lock the assembly in place without the capability of loosening or breaking away due to system operation, vibration, impact or seismic event.

CAUTION

Secure all dampers when servicing damper, actuator or linkages. Dampers may activate automatically, disconnect control circuits or pneumatic control systems to avoid injury.

Protect adjacent flammable materials when brazing, Use flame and heat protection barriers where needed. Have fire extinguisher available and ready for immediate use.

PRE START-UP

WARNING: Improper installation, adjustment, alterations, service or maintenance can cause injury and property damage, as well as possible voiding of factory warranty. For assistance or additional information, consult a qualified contractor.

RECEIVING AND INSPECTING

- Thoroughly examine the exterior and interior of all units for transportation damage to the cabinet, piping, blower(s), motor(s), coil(s), electric heat and electrical components. Interior damage may occur, even with no visible exterior damage. If damage is found, immediately file a claim with the carrier. Note the damage on the bill of lading before signing for the shipment.

- Check the bill of lading for verification that all items shown (including loose items) have been received. Notify the manufacturer's representative of any shortages or items shipped in error.

UNIT RIGGING AND PLACEMENT

- Install ductwork to comply with ASHRAE Fundamentals Handbook, SMACNA, NFPA 90A and local code.

- The installation must conform with local building codes and the NATIONAL ELECTRIC CODE.

- Locate unit support in accordance with the mechanical and structural plans. If so equipped, locate the isolator placement and correct size as shown on the submittal drawing.

- If floor mount isolators are required, factory or field provisions must be made for isolator attachment. Units can be mounted directly to the floor or on a base rail. The optional base rail is recommended for units with isolators.

- Do not handle the unit using coil stubout connectors, as damage may occur at brazed joint(s).

CLEARANCE

- All units, including those with electric heat, are listed for zero clearance to combustibles.

- Sufficient clearance for normal servicing of this equipment is recommended.

- All electrical panels must have 36" working space in front of panel to meet NATIONAL ELECTRICAL CODE; however, local inspectors may wave this requirement if the hinged cover has a 90° free swing.

FIELD WIRING

NOTE: Prior to installing any wiring, check the unit name plate for main power voltage, control voltage, transformer sizing and any fuse sizing. All field wiring must comply with NATIONAL ELECTRIC CODE and local code requirements.

- Tighten all wiring lugs and terminals prior to connecting power to the unit, as they may loosen during transportation.
- Route the power lines to the power distribution terminals inside the control enclosure. If a factory wired disconnect switch is installed, then connect the power lines to the line side of the switch.
- Mount and wire any field installed items as indicated on the factory supplied wiring diagram. When mounting field installed components, do not jumper out or rewire any factory wiring without written approval from Environmental Technologies. Violation will void warranty.

BELTS, DRIVES, AND BEARINGS

NOTE: For safety, please turn off all power before checking belt tension.

- Prior to starting the unit, tighten all set screws on the fan(s), sheaves and bearings where applicable. Set screws may loosen during transportation.
- Sheaves must be in line. Use a straight edge to verify.
- General belt tension rules for V-Belt drives:
  - Ideal tension is the lowest tension at which the belt will not slip under peak load conditions.
  - Check tension frequently during the first 24-48 hours of operation.
  - Over tensioning shortens belt and bearing life.
  - Keep belts free from foreign material which may cause slip.
  - Make V-Belt inspection on a periodic basis. Tension when slipping. Never apply belt dressing, as this will damage the belt and cause early failure.
  - The resilient blower bearing must not deflect laterally once belt is tightened.

DETERMINING DEFLECTION FORCE (see diagram below)

Example

Belt Span = 20"
Belt Type – A, new, unnotched
RPM = 1000
Small Sheave Diameter = 4.0"

Solution

Deflection = 20 ÷ 64 = .313" (round to 5/16")
Referring to table on page 6, deflection force at calculated deflection is 6.8lbs.

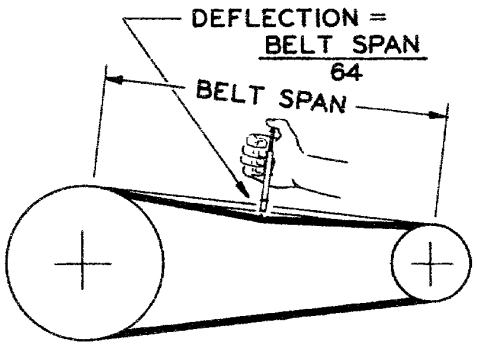


FIGURE 5

See table on opposite page for deflection force in pounds.

DEFLECTION FORCE — LBS.

Belt Type	Smallest Sheave Diameter Range	RPM Range	Super Gripbelts and Unnotched Gripbands		Gripnotch Belts and Notched Gripbands	
			Used Belt	New Belt	Used Belt	New Belt
A, AX	3.0 - 3.6"	1000 - 2500	3.7	5.5	4.1	6.1
	3.8 - 4.8"	1000 - 2500	4.5	6.8	5.0	7.4
	5.0 - 7.0"	1000 - 2500	5.4	8.0	5.7	9.4
B, BX	3.4 - 4.2"	860 - 2500	Not Recommended		4.9	7.2
	4.4 - 5.6"	860 - 2500	5.3	7.9	7.1	10.5
	5.8 - 8.6"	860 - 2500	6.3	9.4	8.5	12.6

REPLACEMENT PARTS

- Replacement parts may be ordered from the local ENVIRO-TEC® representative. Factory replacement parts should be used wherever possible to maintain agency listings. Should replacement parts not be purchased from the factory, use only parts duplicating the exact type, size, voltage and other operating characteristics of the original part. Contact the local representative before using any substitute part or making unit modifications. Any substitutions and/or modifications not authorized by the factory will void the unit warranty and could result in personal injury and/or property damage.

When ordering parts, the following information must be supplied to ensure proper part identification:

1) Complete unit model number
2) ET number from the unit nameplate
3) Complete parts description, including any identification numbers

PIPING

- All piping must comply with applicable state and local codes.
- On water coils, the piping must be in a counterflow configuration; water inlet on the leaving air side of the coil and at the bottom of the coil to provide the necessary purging of air.
- All water piping should be designed and installed to meet the job requirements.
- Where applicable, freeze protection should be used.
- Supply and return water piping should be supported. Do not suspend piping, controls, and/or shutoff valves from coil headers.
- All refrigerant piping (split systems) should be designed and installed in accordance with ARI and ASHRAE. Leak testing should be performed before any startup procedures are initiated. On refrigeration systems, follow recommended system evacuation from the condenser unit manufacturer.

CONDENSATE DRAIN AND TRAPS

• Drain lines should be at least the same size as the drain pan connection. Properly sized traps should be used to allow the condensate from the coils to drain from the drain pan. See **FIGURES 4A - 4E** below.

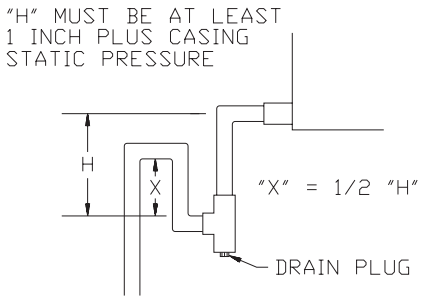


FIGURE 4A
Trap detail for negative cabinet static pressure

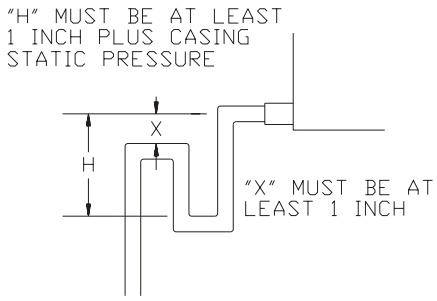


FIGURE 4B
Trap detail for positive cabinet static pressure

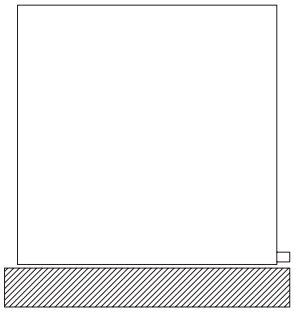


FIGURE 4C

• *No base rail*

• *Housekeeping pad Required to accommodate trap height*

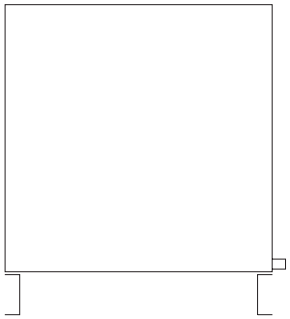


FIGURE 4D

• *With base rail*

• *Depending on static pressure, housekeeping pad may not be needed for trap installation*

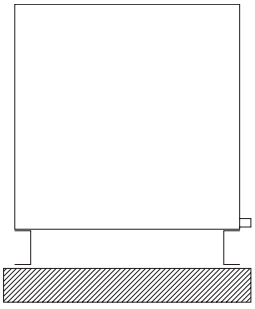


FIGURE 4E

• *With base rail and housekeeping pad*

GENERAL BELT AND BEARING MAINTENANCE

- Frequency of bearing relubrication depends upon the operating conditions. The proper amount of lubricant in the bearings is very important. Both excessive and inadequate lubrication may cause failure. The bearings should be relubricated while they are rotating (if it is safe to do so); the grease should be pumped in slowly until a slight bead forms around the seals. It is solely the owner's responsibility for maintaining a proper lubrication schedule. Failure to do so may cause substantial unit damage and voiding of the factory warranty. Note that only those bearings equipped with a grease fitting can be relubricated.
- The following is a generic guide intended for standard equipment used in common situations.

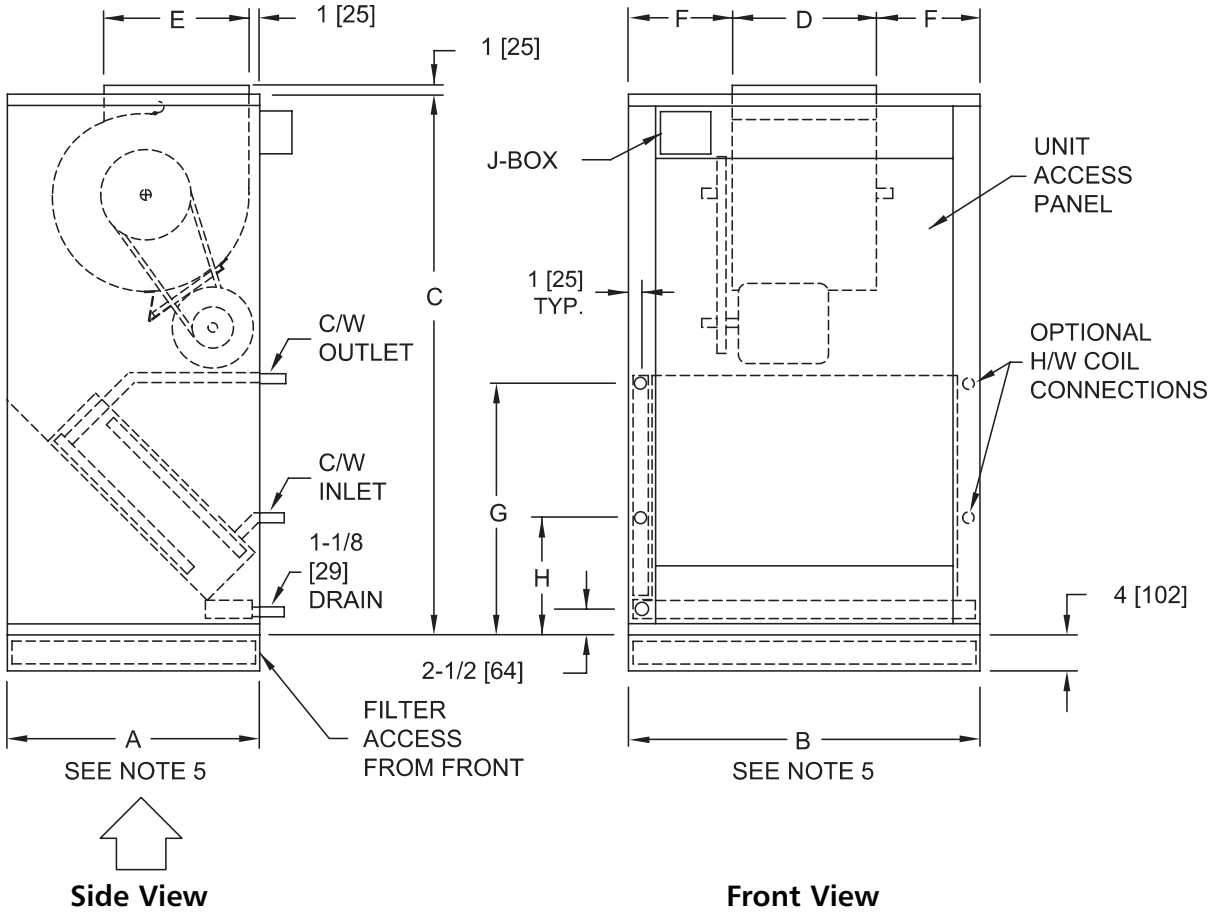
MAINTENANCE TO BE PERFORMED	EVERY 3 MONTHS OF OPERATION (MINIMUM)	EVERY FALL
Filters (as required)	x	
Grease Bearings	x	
Inspect & Clean Blower Wheel		x
Lubricate Fan Motor *(if applicable)*		x
Check Belt Tension	x	
Check Electrical Connections		x
Check Bearings, Drives & Blower Wheel for Tightness		x

Normal operation is based on 8 hours a day. If unit runs more than this, adjust accordingly.

RECOMMENDED TORQUE FOR TIGHTENING SETSCREWS		
Set Screw Diameter	**Minimum Recommended Torque**	
	Inch lbs.	Foot lbs.
#10	28	2.3
1/4	66	5.5
5/16	126	10.5
3/8	228	19.0
7/16	348	29.0
1/2	504	42.0
5/8	1104	92.0

THIS MANUAL IS NOT INTENDED TO SUPPLANT REGULATIONS OR LOCAL CODES HAVING JURISDICTION. IT IS RECOMMENDED THAT THESE ITEMS BE REVIEWED AND COMPLETED PRIOR TO INITIATING EQUIPMENT START-UP.

Model VB (Bottom Return)

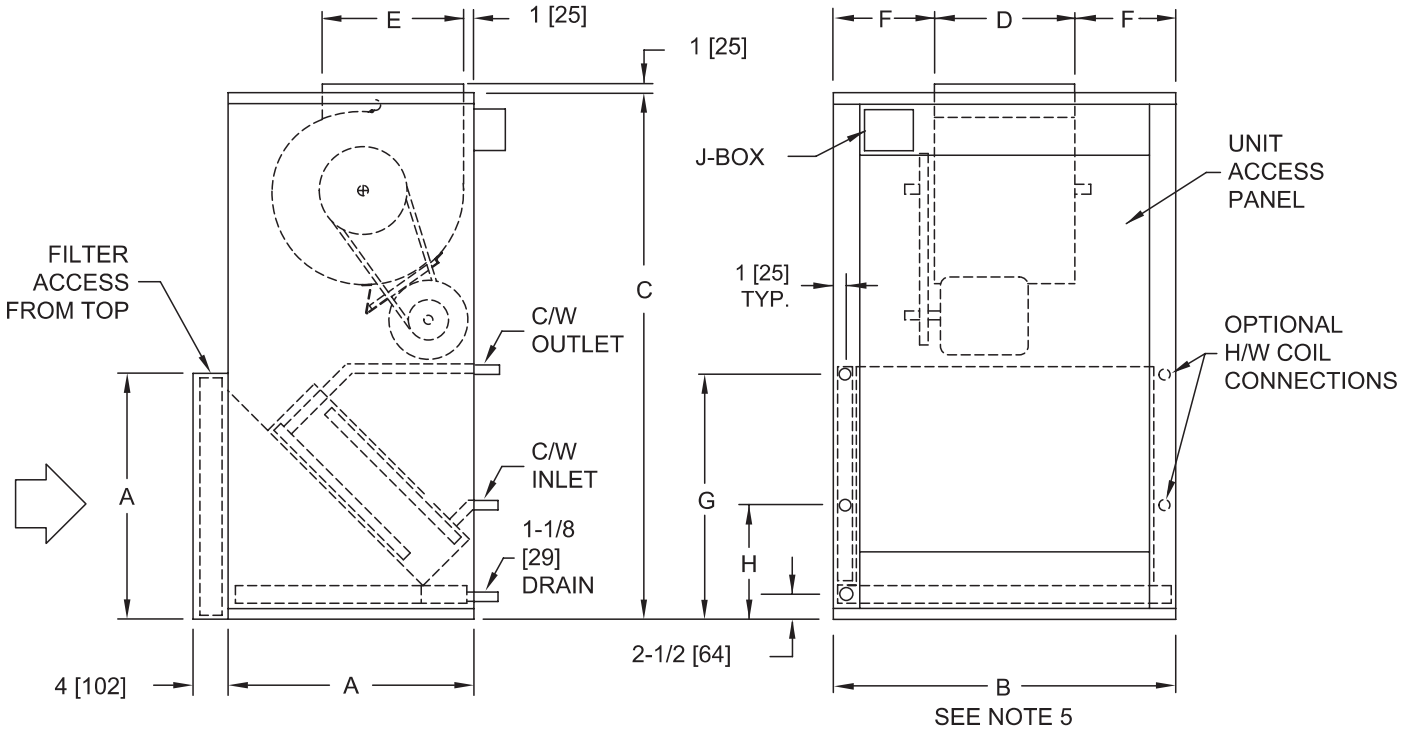


Dimensional Data

UNIT SIZE	A	B	C	D	E	F	G	H
08	19 [483]	26 [660]	46 [1168]	8-1/4 [210]	11-1/4 [286]	8-7/8 [225]	20 [508]	10-1/4 [260]
12	21 [533]	26 [660]	46 [1168]	12 [305]	11-1/4 [286]	7 [178]	23-1/4 [591]	9-3/4 [248]
16	25 [635]	29 [737]	54 [1372]	10-1/4 [260]	8-1/2 [216]	9-3/8 [238]	25-3/4 [654]	10-3/4 [273]
20	28 [711]	29 [737]	54 [1372]	13-1/4 [337]	8-1/2 [216]	7-7/8 [200]	30-3/4 [781]	10-1/2 [267]
25	28 [711]	39 [991]	60 [1524]	13-1/4 [337]	16 [406]	12-7/8 [327]	28-3/4 [730]	12-1/4 [311]
30	28 [711]	39 [991]	60 [1524]	15 [381]	16 [406]	12 [305]	30-3/4 [781]	10-1/2 [267]

NOTES:
1. All dimensions +/- 1/4" [6mm].
2. Maximum total coil rows: 6.
3. All drawings subject to change without prior notice. Refer to www.enviro-tec.com for current submittal drawings.
4. Left hand unit shown; right hand unit has C/W and H/W piping connections mirrored.
5. Filter assembly runs the full length of the unit size.
6. Drawings not for installation purposes.

Model VR (Rear Return)



Side View **Front View**

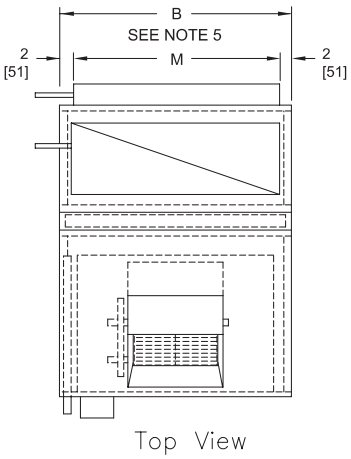
Dimensional Data

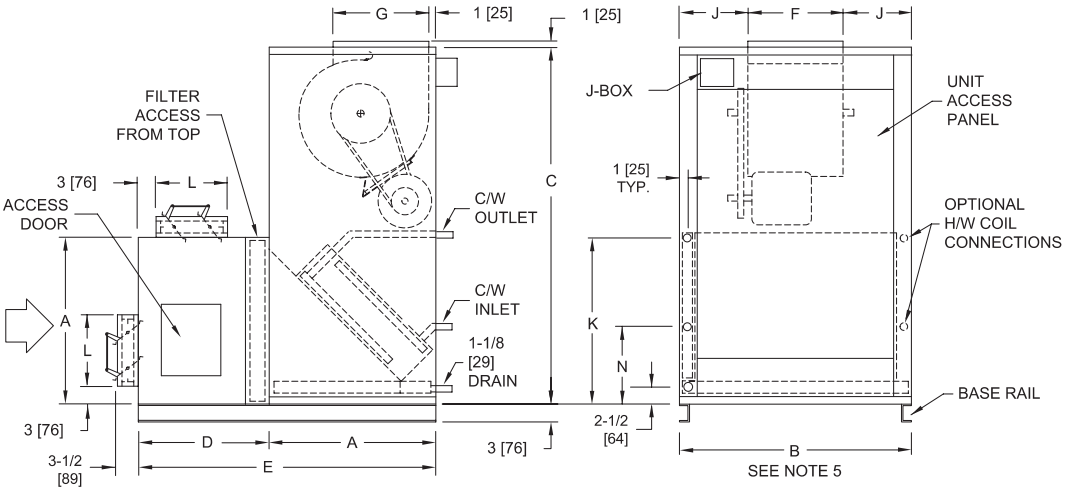
UNIT SIZE	A	B	C	D	E	F	G	H
08	19 [483]	26 [660]	46 [1168]	8-1/4 [210]	11-1/4 [286]	8-7/8 [225]	20 [508]	10-1/4 [260]
12	21 [533]	26 [660]	46 [1168]	12 [305]	11-1/4 [286]	7 [178]	23-1/4 [591]	9-3/4 [248]
16	25 [635]	29 [737]	54 [1372]	10-1/4 [260]	8-1/2 [216]	9-3/8 [238]	25-3/4 [654]	10-3/4 [273]
20	28 [711]	29 [737]	54 [1372]	13-1/4 [337]	8-1/2 [216]	7-7/8 [200]	30-3/4 [781]	10-1/2 [267]
25	28 [711]	39 [991]	60 [1524]	13-1/4 [337]	16 [406]	12-7/8 [327]	28-3/4 [730]	12-1/4 [311]
30	28 [711]	39 [991]	60 [1524]	15 [381]	16 [406]	12 [305]	30-3/4 [781]	10-1/2 [267]

NOTES:
1. All dimensions +/- 1/4" [6mm].
2. Maximum total coil rows: 6.
3. All drawings subject to change without prior notice. Refer to www.enviro-tec.com for current submittal drawings.
4. Left hand unit shown; right hand unit has C/W and H/W piping connections mirrored.
5. Filter assembly runs the full length of the unit size.
6. Drawings not for installation purposes.

Model VMR with Inlet Damper Section

UNIT SIZE	K	L	M	N
08	20 [508]	6 [152]	22 [559]	10-1/4 [260]
12	23-1/4 [591]	9 [229]	22 [559]	9-3/4 [248]
16	25-3/4 [654]	9 [229]	25 [635]	10-3/4 [273]
20	30-3/4 [781]	12 [305]	25 [635]	10-1/2 [267]
25	28-3/4 [730]	12 [305]	35 [889]	12-1/4 [311]
30	30-3/4 [781]	12 [305]	35 [889]	10-1/2 [267]



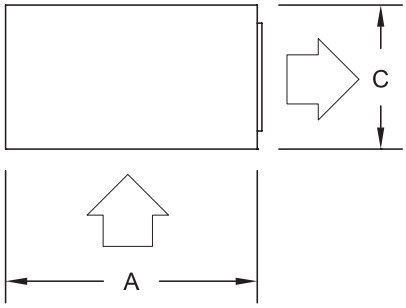


Dimensional Data

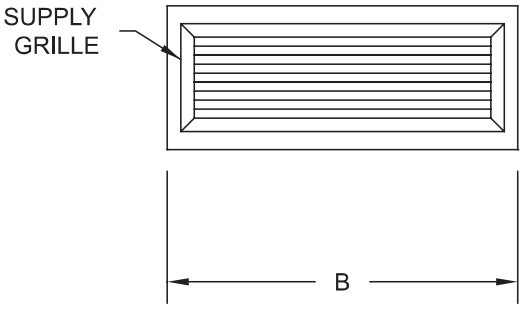
UNIT SIZE	A	B	C	D	E	F	G	J
08	19 [483]	26 [660]	46 [1168]	15 [381]	34 [864]	8-1/4 [210]	11-1/4 [286]	8-7/8 [225]
12	21 [533]	26 [660]	46 [1168]	18 [457]	39 [991]	12 [305]	11-1/4 [286]	7 [178]
16	25 [635]	29 [737]	54 [1372]	18 [457]	43 [1092]	10-1/4 [260]	8-1/2 [216]	9-3/8 [238]
20	28 [711]	29 [737]	54 [1372]	21 [533]	49 [1245]	13-1/4 [337]	8-1/2 [216]	7-7/8 [200]
25	28 [711]	39 [991]	60 [1524]	21 [533]	49 [1245]	13-1/4 [337]	16 [406]	12-7/8 [327]
30	28 [711]	39 [991]	60 [1524]	21 [533]	49 [1245]	15 [381]	16 [406]	12 [305]

NOTES:
1. All dimensions +/- 1/4" [6mm].
2. Maximum total coil rows: 6.
3. All drawings subject to change without prior notice. Refer to www.enviro-tec.com for current submittal drawings.
4. Left hand unit shown; right hand unit has C/W and H/W piping connections mirrored.
5. Filter assembly runs the full length of the unit size.
6. Drawings not for installation purposes.

Supply Plenum with Double Deflection Grille (VB and VR)



Side View



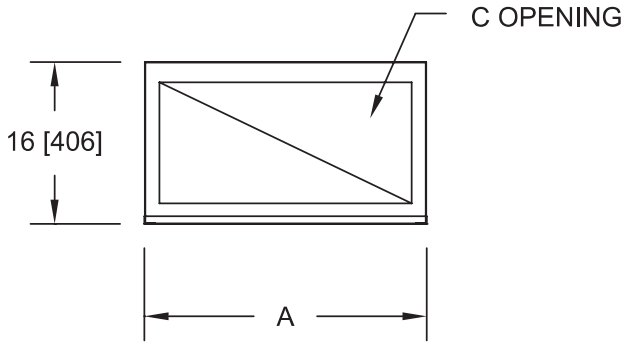
Front View

Dimensional Data

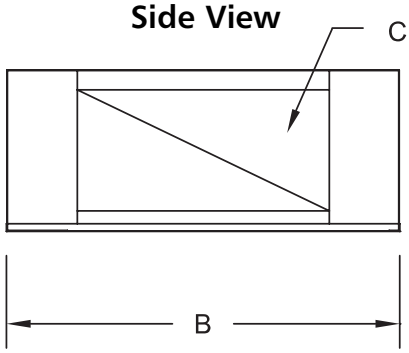
UNIT SIZE	A	B	C	SUPPLY GRILLE
08	19 [483]	26 [660]	12 [305]	18 X 8 [457 X 203]
12	21 [533]	26 [660]	12 [305]	22 X 8 [559 X 203]
16	25 [635]	29 [737]	14 [356]	24 X 10 [610 X 254]
20	28 [711]	29 [737]	16 [406]	24 X 12 [610 X 305]
25	28 [711]	39 [991]	16 [406]	30 X 12 [762 X 305]
30	28 [711]	39 [991]	16 [406]	36 X 12 [914 X 305]

NOTES:
1. All dimensions +/- 1/4" [6mm].
2. All drawings subject to change without prior notice. Refer to www.enviro-tec.com for current submittal drawings.
3. Supply plenum shipped attached to unit.
4. Supply plenum includes a steel double deflection supply grille; location is front as shown.
5. Supply plenum may not be combined with blow through electric heat.

Return Plenum (Model VB)



Side View



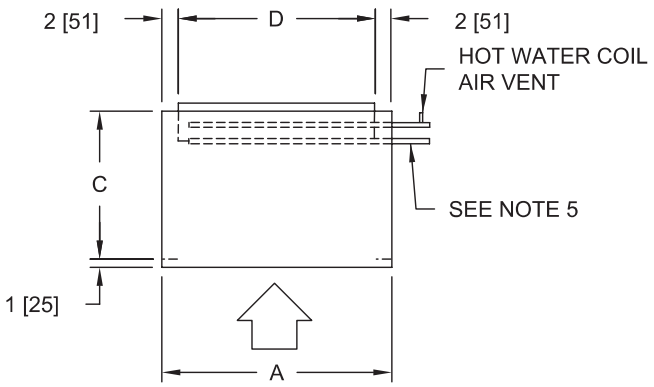
Front View

Dimensional Data

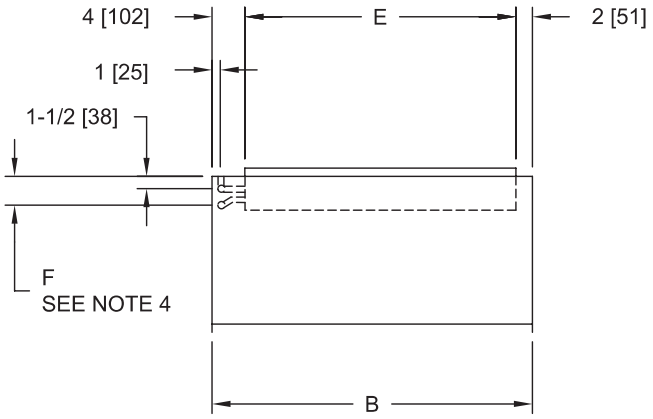
UNIT SIZE	A	B	C OPENING
08	19 [483]	26 [660]	9 X 16 [229 X 406]
12	21 [533]	26 [660]	9 X 18 [229 X 457]
16	25 [635]	29 [737]	9 X 22 [229 X 559]
20	28 [711]	29 [737]	12 X 22 [305 X 559]
25	28 [711]	39 [991]	12 X 25 [305 X 635]
30	28 [711]	39 [991]	12 X 25 [305 X 635]

NOTES:
1. All dimensions +/- 1/4" [6mm].
2. All drawings subject to change without prior notice. Refer to www.enviro-tec.com for current submittal drawings.

Discharge Section with Heating Coil (VB and VR)



Side View



Front View

Dimensional Data

UNIT SIZE	A	B	C	D	E	F (4)				WGT. (3)
						HOT WATER		STEAM		lbs
						1 ROW	2 ROW	1 ROW	2 ROW	[kg]
08	19 [483]	26 [660]	12 [305]	15 [381]	20 [508]	2-3/4 [70]	2-3/4 [70]	2-3/4 [70]	2-3/4 [70]	37 [17]
12	21 [533]	26 [660]	12 [305]	17 [432]	20 [508]	2-3/4 [70]	2-3/4 [70]	2-3/4 [70]	2-3/4 [70]	41 [19]
16	25 [635]	29 [737]	14 [356]	21 [533]	23 [584]	2-3/4 [70]	3 [76]	2-3/4 [70]	3-1/4 [83]	52 [24]
20	28 [711]	29 [737]	14 [356]	24 [610]	23 [584]	2-3/4 [70]	3 [76]	3-1/4 [83]	3-1/4 [83]	58 [26]
25	28 [711]	39 [991]	18 [457]	24 [610]	33 [838]	2-3/4 [70]	3 [76]	3-1/4 [83]	3-3/4 [95]	81 [37]
30	28 [711]	39 [991]	18 [457]	24 [610]	33 [838]	3 [76]	3-1/4 [83]	3-3/4 [95]	3-3/4 [95]	81 [37]

Coil Connection Sizes

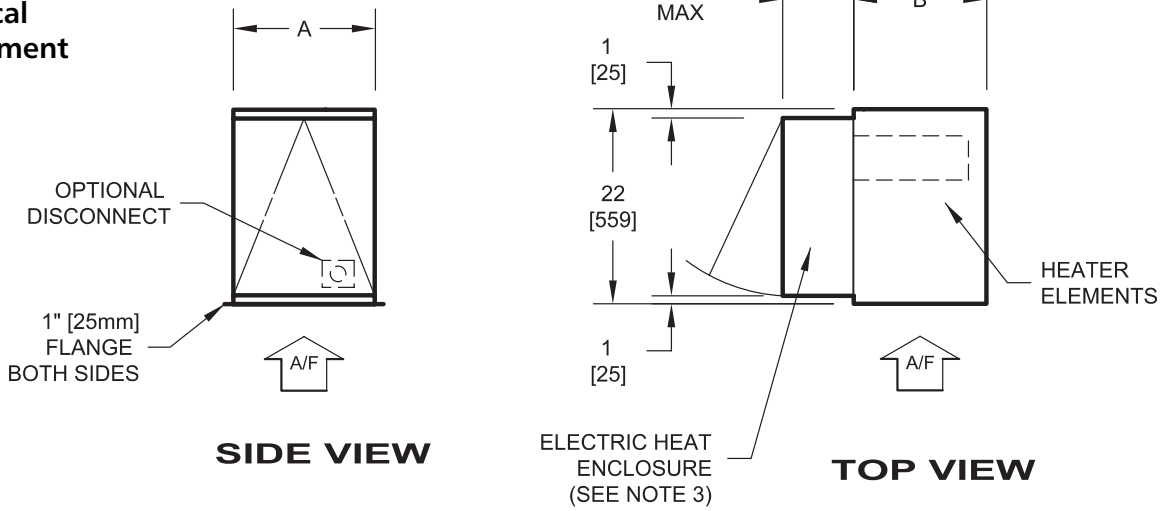
UNIT SIZE	HOT WATER		STEAM			
			1 ROW		2 ROW	
	1 ROW	2 ROW	STEAM	CONDENSATE	STEAM	CONDENSATE
08	5/8 [16]	5/8 [16]	1-1/8 [29]	7/8 [22]	1-1/8 [29]	7/8 [22]
12	5/8 [16]	5/8 [16]	1-1/8 [29]	7/8 [22]	1-1/8 [29]	7/8 [22]
16	5/8 [16]	5/8 [16]	1-1/8 [29]	7/8 [22]	1-3/8 [35]	1-1/8 [29]
20	5/8 [16]	5/8 [16]	1-3/8 [35]	1-1/8 [29]	1-3/8 [35]	1-1/8 [29]
25	5/8 [16]	7/8 [22]	1-3/8 [35]	1-1/8 [29]	1-5/8 [41]	1-1/8 [29]
30	7/8 [22]	7/8 [22]	1-5/8 [41]	1-1/8 [29]	1-5/8 [41]	1-1/8 [29]

NOTES:

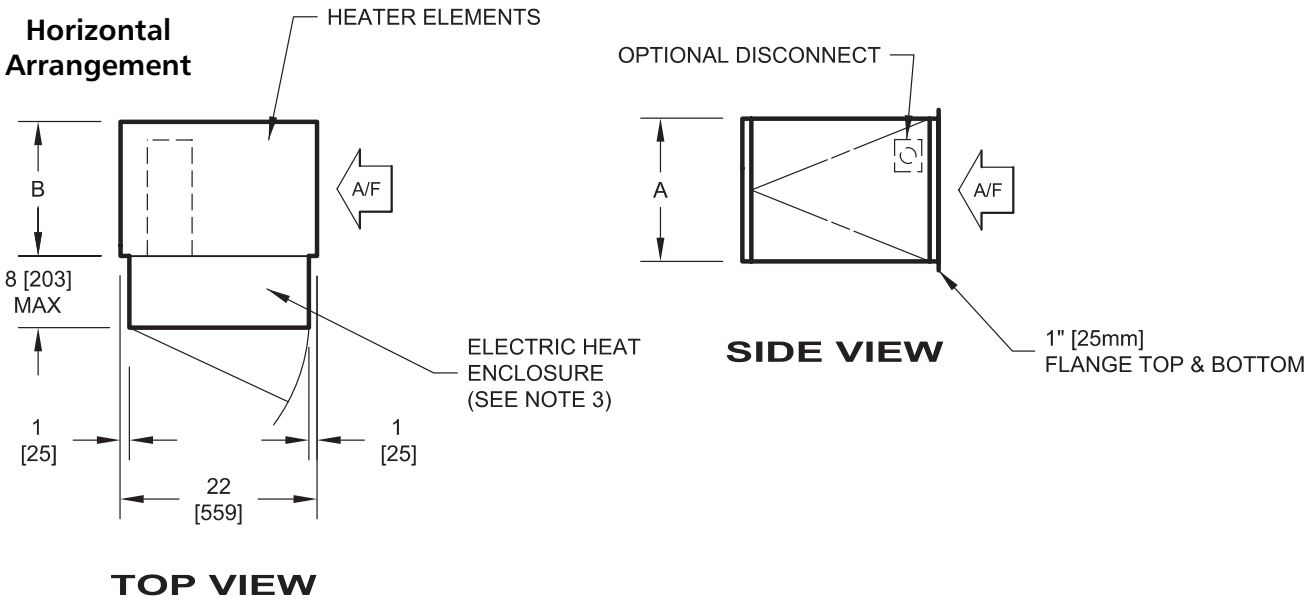
1. All dimensions +/- 1/4" [6mm].
2. This section required with 6 row cooling in conjunction with hot water and all steam heating.
3. Weight with 2 row coil.
4. Coil connection dimension + 1/2" [13mm].
5. **Hot Water Coils:** Supply – bottom, Return – top. **Steam Coils**: Steam – top, Condensate – bottom.
6. All drawings subject to change without notice. Refer to www.enviro-tec.com for current submittal drawings.

Blow Through Electric Heat (VB and VR)

Vertical Arrangement



Horizontal Arrangement

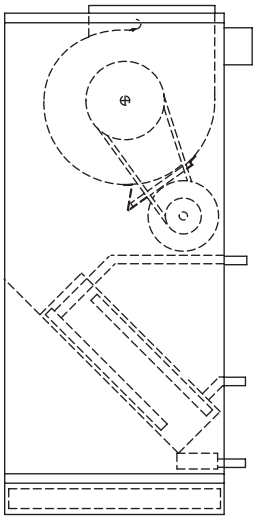


Dimensional Data

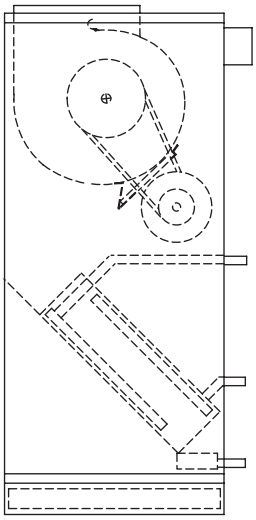
UNIT SIZE	SINGLE WALL		
	A	B	WEIGHT lbs [kg]
08	11-5/8" [295]	8-1/2" [216]	42 [19]
12	11-5/8" [295]	12-1/4" [311]	42 [19]
16	13-3/4" [349]	10-1/2" [267]	42 [19]
20	13-3/4" [349]	13-1/2" [343]	50 [23]
25	17-1/4" [438]	13-1/2" [343]	55 [25]
30	17-1/4" [438]	16-1/4" [413]	55 [25]

NOTES:
1. All dimensions are +/- 1/8" [3mm].
2. All drawings subject to change without notice. Refer to www.enviro-tec.com for current submittal drawings.
3. Electric heat enclosure specified left or right with air to back. Standard control enclosure is right hand.

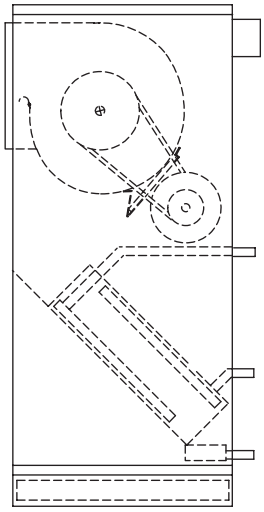
Model VB Discharge Arrangements



Standard Rotation
Arrangement 2

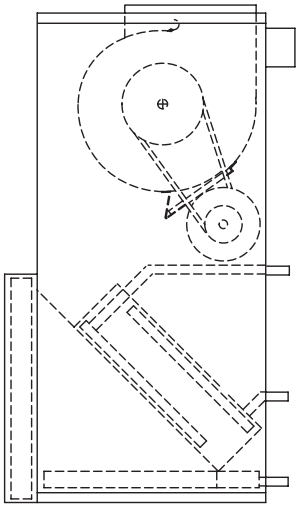


Reverse Rotation
Arrangement 1

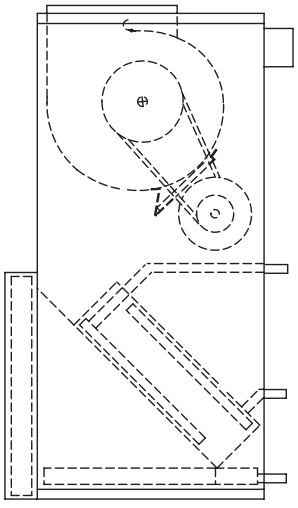


Horizontal Rear Discharge
Arrangement 7

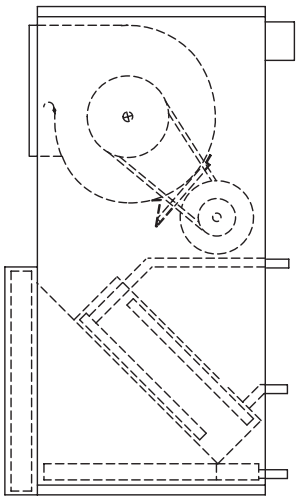
Model VR Discharge Arrangements



Standard Rotation
Arrangement 2



Reverse Rotation
Arrangement 1



Horizontal Rear Discharge
Arrangement 7

NOTES:
1. Refer to Dimensional Data for unit dimensions.
2. All drawings subject to change without prior notice. Refer to www.enviro-tec.com for current submittal drawings.
3. Fan arrangements are also available with inlet damper section (Model VR).
4. Side access filter rack standard on arrangement 7 (Model VR).

Motor Electrical Data

MOTOR HP	SINGLE PHASE AMPS				THREE PHASE AMPS			
	115V	208V	230V	277V	208V	230V	460V	575V
1/3	6.6	3.0	3.3	2.3	1.6	1.4	0.8	0.6
1/2	9.0	4.0	4.5	3.0	2.2	1.8	1.1	0.7
3/4	11.0	5.4	5.5	4.4	2.6	2.5	1.3	0.9
1	12.6	6.2	6.3	5.2	3.4	3.4	1.7	1.4
1 1/2	15.0	7.8	7.5	7.4	5.0	5.0	2.5	2.0
2	--	--	--	--	6.0	6.0	3.0	2.4

NOTES:
1. AMPs shown above are NEC full load AMPs for standard motor. Actual motor nameplate AMPs may vary.
2. Consult factory for applications requiring special motors.

Unit Weight Data[1]

UNIT COMPONENTS		UNIT SIZE					
		08	12	16	20	25	30
BASIC UNIT		125 (57)	131 (60)	160 (73)	167 (76)	231 (105)	236 (107)
DAMPER SECTION		42 (19)	53 (24)	59 (27)	73 (33)	91 (41)	91 (41)
BLOW THRU ELECTRIC HEATER		47 (21)	47 (21)	47 (21)	55 (25)	61 (28)	61 (28)
DISCHARGE COIL SECTION[2]		32 (15)	32 (15)	43 (20)	46 (21)	66 (30)	78 (35)
SUPPLY PLENUM		22 (10)	26 (12)	35 (16)	38 (17)	76 (35)	76 (35)
RETURN PLENUM (VB)		29 (13)	30 (14)	33 (15)	35 (16)	44 (20)	44 (20)
COIL	1 ROW	12 (5)	14 (6)	17 (8)	21 (10)	25 (11)	28 (13)
	COIL WATER WEIGHT	1.7 (1)	2.2 (1)	2.8 (1)	3.7 (2)	4.5 (2)	6.1 (3)
	2 ROW	13 (6)	17 (8)	21 (10)	28 (13)	32 (15)	36 (16)
	COIL WATER WEIGHT	3.7 (2)	4.6 (2)	5.9 (3)	8.0 (4)	9.5 (4)	11.7 (5)
	4 ROW	26 (12)	34 (15)	37 (17)	50 (23)	59 (27)	65 (30)
	COIL WATER WEIGHT	7.3 (3)	9.1 (4)	11.5 (5)	15.7 (7)	18.9 (9)	21.6 (10)
	6 ROW	38 (17)	51 (23)	58 (26)	77 (35)	92 (42)	102 (46)
	COIL WATER WEIGHT	10.7 (5)	13.4 (6)	17.2 (8)	23.2 (11)	28.2 (13)	32.3 (15)

NOTES:
1. Unit weight data is shipping weight in pounds (kilograms).
2. Discharge section includes a 2 row coil.

Motor/Drive Weight Data[1,2]

TYPE	MOTOR HP					
	1/3	1/2	3/4	1	1 1/2	2
SINGLE PHASE	37 (17)	37 (17)	45 (20)	47 (21)	55 (25)	N/A
THREE PHASE	34 (15)	34 (15)	40 (18)	43 (20)	46 (21)	53 (24)

NOTES:
1. Includes motor, pulleys, belts, and motor base.
2. Motor/drive weight data is shipping weight in pounds (kilograms).

Inspection & Start-Up Checklist

Receiving & Inspection

- ❑ Unit Received Undamaged
- ❑ Unit Arrangement/Hand Correct
- ❑ Unit Received Complete As Ordered
- ❑ Unit Structural Support Complete & Correct

Handling & Installation

- ❑ Unit Mounted Level & Square
- ❑ Proper Electrical Service Provided
- ❑ Proper Service Switch/Disconnect Provided
- ❑ Proper Access Provided For Unit & Accessories
- ❑ Proper Overcurrent Protection Provided

Handling & Installation (continued)

- ❑ Proper Chilled Water Line Size To Unit
- ❑ Proper Refrigerant Line Sizes To Unit
- ❑ Proper Steam Condensate Trap On Return Line
- ❑ All Services To Unit In Code Compliance
- ❑ Proper Hot Water Line To Unit
- ❑ Proper Steam Line Sizes To Unit
- ❑ Proper Steam Supply Pressure To Unit (15psi Max)
- ❑ All Shipping Screws & Braces Removed

Cooling/Heating Connections

- ❑ Protect Valve Package Components From Heat
- ❑ Connect Field Piping To Unit
- ❑ Install Drain Line & Traps As Required
- ❑ Install Condensate Pan Under Piping As Required
- ❑ Mount Valve Packages
- ❑ Pressure Test All Piping For Leaks
- ❑ Insulate All Piping As Required

Ductwork Connections

- ❑ Install Ductwork, Fittings & Grilles As Required
- ❑ Control Outside Air For Freeze Protection
- ❑ Proper Supply & Return Grille Type & Size Used
- ❑ Insulate All Ductwork As Required

Electrical Connections

- ❑ Refer To Unit Wiring Diagram
- ❑ All Field Wiring In Code Compliance
- ❑ Connect Incoming Power Service or Services

Unit Startup

- ❑ General Visual Unit & System Inspection
- ❑ Record Ambient Temperature
- ❑ Close All Unit Isolation Valves
- ❑ Fill Systems With Water/Refrigerant
- ❑ All Ductwork & Grilles In Place
- ❑ Start Fans, Etc.
- ❑ Check All Ductwork & Units For Air Leaks
- ❑ Record All Final Settings For Future Use
- ❑ Check All Dampers For Proper Operation
- ❑ Verify Proper Heating Operation
- ❑ Record Electrical Supply Voltage
- ❑ Check All Wiring For Secure Connections
- ❑ Flush Water Systems
- ❑ Vent Water Systems As Required
- ❑ All Unit Panels & Filters In Place
- ❑ Check For Overload Condition Of All Units
- ❑ Balance Air Systems As Required
- ❑ Check Piping & Ductwork For Vibration
- ❑ Verify Proper Cooling Operation
- ❑ Reinstall All Covers & Access Panels

Blower / Motor

- ❑ Check Sheave Set Screw Tightness
- ❑ Check Blower Wheel Set Screw Tightness
- ❑ Adjust Blower Speed as Necessary for Balancing Airflow
- ❑ Check / Adjust Sheave Alignment
- ❑ Check / Adjust Belt Tension