# Table of Contents

## Section I: Introduction and Definitions
- Introduction ........................................................................................................1
- Definitions ..........................................................................................................1-2

## Section 2: Receiving and Inspecting
- Receiving ........................................................................................................3
- Lifting and Handling ..........................................................................................3
- Storage .................................................................................................................3

## Section 3: Installation
- Identification Markers ........................................................................................4
- Installing .............................................................................................................4

## Section 4: Controls and Wiring
- Drive Motor ........................................................................................................5
- Variable Speed Controller ...................................................................................5
- Frost Prevention Measures .................................................................................5

## Section 5: Startup and Operation
- Prestartup checks ................................................................................................6
- Seal checks .........................................................................................................6
- Variable Speed Drive ..........................................................................................6

## Section 6: Maintenance
- Bearings ..............................................................................................................7
- Drive Motor ........................................................................................................7
- Drive Belts ...........................................................................................................7
- Seals ....................................................................................................................7
- Wheel ................................................................................................................7
- Variable frequency controller .............................................................................7

## Section 7: Troubleshooting
....................................................................8

## Appendix 1: VFD Schematics ...............................................................9

## Appendix 2: Power Twist Belt Instruction .................................10-12
**SECTION I**

**Introduction and Definitions**

**Introduction**

Your NovelAire Technologies energy conservation wheel (ECW) cassette comes complete and ready to run. The ECW cassette is built to provide many years of trouble free service. With proper installation and performance of the minimal maintenance requirements, your ECW should operate problem free.

Please review these instructions carefully before installing the unit. Most damage occurs due to improper installation. NovelAire is not responsible for a unit that has been improperly installed. The rotor media can be torn or crushed by mechanical means if the unit is improperly treated.

This manual covers operating and maintenance instructions for both the total heat wheels (ECW) and sensible only wheels (SEW).

For questions please call NovelAire Technologies at

**NovelAire Technologies**  
10132 Mammoth Drive  
Baton Rouge, LA 70814  
(225) 924-0427(phone)  
(225) 930-0340(fax)

**Definitions**

**Bearing, external** - Flanged or pillow block bearing used with rotating shaft models.

**Bearing, internal** - Sealed ball bearing used with fixed shaft models.

**Bulb seal** - The seal used for both the circumferential seal and the inner seal in the NovelAire ECW cassettes. They are constructed of neoprene and configured to seal against the wheel band in the case of the circumferential seal, and against the wheel face in the case of the inner seal. These seals are noncontact in that there is a slight gap between seal and sealing face to allow the wheel to turn at high RPMs without overtorquing motor or causing seal damage. These seals have an integral clip and are clipped to the cassette face panel cutout (circumferential) or to the post(inner).

**Cassette** - The steel structure that houses the rotor. Typically ECW cassettes are of punched sheet metal panelized construction. Large cassettes are of box tubing construction.

**Energy Recovery Unit (ERV)** - The unit that the ECW fits into. Typically this will include two blowers and the ECW cassette all enclosed in a sheet metal housing.

**Enthalpy wheel** - A generic name for an energy conservation wheel. The term enthalpy refers to an air stream's total energy (temperature and humidity level).

**Exhaust air** - The air stream leaving an ECW that is exhausted to the outside. Exhaust air is building return air that has been run through the wheel.

**Heat wheel** - Synonymous with enthalpy wheel, energy conservation wheel, or total energy recovery wheel. Some heat wheels are sensible only wheels and should not be confused with total energy recovery wheels.

**Hub** - The center support of an ECW.

**Latent energy** - Latent energy in the context of wheel discussions is the work done by the wheel to transfer moisture from one air stream to another. Latent work is accompanied by humidity changes in the air streams.

**Media** - The chemical composite part of the wheel which actually performs the latent and sensible exchange.

**Outdoor air** - The air stream entering an ECW that is brought in from outside. Outdoor air becomes supply air after going through the wheel.

**Purge** - A small segment of supply air defined by the gap between the inner seal on the outdoor air edge of the center post and the supply air edge of the center post. The purge angle is adjustable. The purge captures the small amount of supply air captive in the wheel when the wheel moves from return to supply and routes it to return to minimize cross contamination.
**Return air** - The air stream entering an ECW that is returned from the building. Return air becomes exhaust air after going through the wheel.

**Rotor** - The part of an ECW that does the energy exchange and consists of the wheel media, hub, spokes, and band.

**Sensible heat** - Sensible energy in the context of wheel discussions is the work done by the wheel to transfer heat from one air stream to another. Sensible work is accompanied by temperature changes in the air streams.

**Sensible wheel** - A wheel that does only sensible work, i.e., where only heat is transferred from one air stream to another and the resultant moisture level remains unchanged.

**Spoke** - Flat metal member used to support the wheel radially.

**Supply air** - The air stream leaving an ECW that is supplied to the building space. Supply air is outdoor air that has been run through the wheel.
SECTION 2
Receiving and Inspecting

Receiving

Upon arrival of your ECW, please inspect cartons, pallets, and packaging for any damage that may have occurred during shipping. Neither NovelAire nor its customer is responsible for shipping damage, and it is important to identify any such damage before the unit is offloaded. Report any shipping damage immediately to shipper and NovelAire Technologies so that the proper remedies may be taken.

If the unit has come shipped on a pallet, please use proper fork lift procedures to offload the pallet. The media can be easily damaged by the forks on the fork lift.

Lifting and Handling

The ECW comes complete with lifting lugs. Lugs are located on top of the unit housing. Large ECWs have 4 lift points and small ECWs have 2. Use only the lifting lugs to off load an ECW that is not palletized. If the unit is palletized, it may be lifted either by the lifting lugs or with the forks placed underneath the pallet. In no case should the unit be lifted by any other means. Small ECW units do not typically come with lifting lugs and can be lifted by hand.

Storage

The unit should be stored out of the weather. If the unit is equipped with outboard bearings, grease these before installation (see Section 6 for greasing instructions). Make sure the unit is covered to prevent dust and dirt collection on wheel face during long periods of storage.

Figure 1

1- Cassette Housing
2- Peripheral Seal
3- Drive Belt
4- Drive Motor
5- Wheel Outer Band
6- Spoke End Bolt
7- Drive Sheave(s)
Section 3
Installation

Identification Markers

Look for any identification markers that have come with your ECW. Rotational direction and/or air stream orientation will be marked on your unit. The airflow orientation should be identical to that of the general arrangement drawing which was provided to you during initial placement of the order. Check to make sure that airflow orientation is as requested. Consult the general arrangement drawing provided earlier. It is important that the unit be installed with the right rotational directions. It is also important that air flows be oriented as designed to allow the purge to function as designed. Consult NovelAire Technologies if you have problems with either of these instructions or if the unit is improperly marked.

Installing

1. Make sure that the installation plan is consistent with identification markers.

2. Locate the purge side of the unit. The ECW accomplishes “purging” by removing a small wedge of supply air and routing it to return air. Thus when the wheel is in rotation, the small amount of stale return air that is trapped in the wheel section rotating from building to outdoor air side is isolated and routed to the exhaust air stream.

3. The installation requires ducting to 4 air streams.

4. It is good practice to include means for accessing the ECW cassette on all sides. This can be done either using 4 access doors, or 2 access doors with provisions for a removable section of front and back duct. NovelAire recommends including a removable plenum section(see Figure 2) in the front and back of the cassette for expedient repair and/or wheel removal. Alternatively, the cassettes can be installed on a slide out track for easy access.

5. Before installation, inspect the cassette for loose screws or bolts. Tighten any loose connections.

6. Small units(under 42 inch) can be installed in either a horizontal or vertical orientation. Larger units must be preengineered to run in the horizontal position as they require thrust bearings. If the unit was not pre-ordered to run horizontally, do not install the unit horizon-

7. Before installing, turn the wheel by hand in the direction of rotation to insure that the wheel alignment was not altered in shipping. If severe binding occurs, it could be due to excessive seal contact. In this case, adjust the seals according to the instructions given in the seal adjustment procedure in section 5.

8. The ECW seals were preadjusted before leaving the factory. If upon inspection excessive clearance between seals and sealing surfaces is found, adjust the seals according to the procedure given in section 5.

9. Inspect the drive belt and make sure that it is securely fastened around the drive sheaves and wheel. If possible test run the wheel before installation.

10. Install the unit. Once the unit is in place, secure the ductwork to the cassette with sheet metal screws, bolts, welding, or alternate method of attachment. Gasketing may be used at the joints, but it must be installed securely so that it can not detach and cause rotor damage. The duct work should be securely fastened to the cassette at all locations.

11. The wheel should be protected using an ASHRAE 30% filter installed in both the outdoor air and return air streams.

Suggested access doors and removable panels to facilitate wheel removal
Section 4
Controls and Wiring

Drive Motor

The ECW comes standard with a constant speed drive motor. Usually this motor is 220V, 1 Ph, but it can be customer specified. ECW motors are standard motors, and should be wired like any standard motor. They have been prewired to turn the proper direction. Follow the directions on the motor schematic accompanying the motor. Some motors can accommodate either 220V or 440V operation. Once the motor is wired, test run the ECW and check for proper rotation.

Variable speed frequency control

If the variable speed option has been supplied, the variable frequency controller’s power rating, power supply, and motor selection have all been matched up by the manufacturer. The unit can accept either a 4-20ma or 0-20ma control signal or a 0-5VDC or 0-10VDC. The unit has also been programmed for the range of wheel speed operation recommended by the manufacturer. Typical wheel speed is 45 RPM, but the programming can allow for wheel speeds above or below 45 RPM. Check all factory settings to make sure they are consistent with the application. Consult NovelAire for any help in achieving the right setup for the application.

The VFD may have been shipped loose for flexibility in mounting. Locate the VFD where it can be read and reached easily. Mount the VFD where it is protected from the weather.

The control signal to the VFD is customer supplied, but typically it will be either a temperature or a humidity reading. Typical wheel speed will be controlled either by exhaust humidity or exhaust temperature measurement. Some applications for sensible wheel exchangers in desiccant cooling systems may call for wheel speed controlled by supply temperature.

Frost Prevention Measures

During extremely cold winter time conditions, frost formation becomes a possibility. The stream that is under risk from frost formation is the exhaust air stream. Frost formation will basically act to plug or reduce air flow and will not hurt the wheel itself.

Wheel speed control works to limit frost formation by reducing wheel performance to a level where the exhaust air temperature is kept above the dew point. Proper dew point control of exhaust air can be determined using psychrometrics by:

1) Locating the winter time design return air condition and outdoor air condition and connect the two points on a psych chart.

2) Determine the dry bulb temperature at which this line intercepts the saturation curve.

3) Add 2 degrees and set dew point control at this point and vary wheel speed downward to control at or above this point.

4.) Audit performance of the wheel during actual operation. If frost formation is never evident, it may be because design conditions are never reached in which case it may be possible to gradually work dew point control down.

Other control strategies for preventing frost formation include preheating outdoor air, preheating return air, face and bypass control, or differential pressure control.
Section 5
Startup and Operation

Prestartup checks

Before starting up the unit, check the following:

1. Does the rotor rotate freely by hand? If not, recheck the seal to determine whether or not it is binding and if so adjust seals following the instructions below.

2. Is the motor rotation correct? This can be checked by detaching the belts from the drive sheave and bumping the motor. The sheave should be rotating in the direction such that the belt will result in rotation per the exterior markings. If not, rewire the motor.

3. Does the air flow orientation match up to design? See the identification markings on the cassette and/or refer to the general arrangement drawing to check the four duct connections to the unit.

4. Are the belts on correctly and sufficiently tight? Belt length is set by the manufacturer. Consult NovelAire if the belt appears too loose.

5. Is the VFD programmed to control the unit and to prevent frost formation? If not, follow the instructions in the manual accompanying the VFD and/or consult NovelAire.

Seal checks

The ECW is provided with a neoprene bulb seal which provides not only an effective seal in both the peripheral and side-to-side sealing directions but also one which is easily adjusted to compensate for seal run-in, shipping misalignment, etc. The neoprene bulb is attached to a metal reinforced U-shaped neoprene grip. The metal/neoprene grip allows for an expandable grip range which can be moved closer or further from the sealing face as needed. The peripheral bulb seals against the wheel outer band and the inner bulb seals against the wheel face. With the wheel stopped, move seals as close to the sealing surface as possible but without exceeding grip range of bulb seal and without pressing the bulb down against the seal face. Bump the motor. If the motor will not turn, the seal is too close and should be nudged back where needed. The seal will seek its equilibrium position based on the closest part of the sealing face. Because the seal is meant to be a noncontact seal, small gaps may be seen between seal and sealing surface once the equilibrium position is reached. Seal leakage is meant to be under 5% at 1 inch of differential between supply and exhaust.

Some seal run-in is to be expected, so don’t be alarmed by small amounts of wear in the neoprene.

Variable speed drive (VFD)

Check the power supply for proper rating. Make sure that the proper jumper orientation is used for the specific control input. Make sure that the unit is programmed for proper input voltage and output voltage.
Section 6
Maintenance

Bearings
Small ECWs (smaller than ECW666) are provided with no maintenance inboard bearings. These bearings should require no maintenance during the life of the equipment. Larger ECWs come equipped with an external flanged bearing which should be greased annually. Use a petroleum based lubricant.

Drive Motor
The drive motors should require no maintenance. Replacement motors may be purchased from normal motor distributors such as Grainger, or directly from NovelAire if preferred.

Drive Belts
NovelAire ECW belts are multilink belts with individual links constructed of a high performance polyurethane elastomer reinforced with multiple plies of polyester fabric. This belt provides a strong, yet flexible belting. The multilink feature provides quick, easy servicing or replacement. See the Appendix for belt repair/replacement instructions.

Seals
The seals are designed to be durable and require no maintenance other than adjustment, but if seals become worn or damaged they may easily be replaced. The seals are made to clip on the cassette or post metal easily. Call NovelAire for servicing information.

Wheel
The wheel is designed to last the life of the equipment. It should be protected by an ASHRAE 30% filter to keep dust and dirt from the heat transfer surface. The wheel is somewhat self cleaning through its normal action of rotating in and out of countercurrent air flow streams. If the wheel becomes dirty, it may be cleaned by blowing out the unit with compressed air (20 psig maximum). In cases of severe uncleanness, the wheel may be removed from the cassette and washed with water following wheel removable procedures outlined below:

1. Remove air handler plenum sections so that the front or back of the cassette may be easily accessed and cleared.
2. Support the wheel from the bottom.
3. If the unit is equipped with an external flanged bearing, loosen the allen screws in the bearing housing that keeps the shaft affixed in the horizontal plane on both bearing, front and back. Remove the shaft clips at the face of the hub from both sides of the shaft. Unbolt one post completely and remove post with bearing completely out. Remove the shaft. Roll the wheel carefully out.
4. If the unit is equipped with an internal bearing, unbolt the shaft screw on both sides of the shaft. Unbolt one post completely and remove post. Remove the shaft clips at the face of the hub from both sides of the shaft. Remove the shaft. Roll the wheel out carefully.
5. With the wheel out, wash the media carefully with water. Once clean, allow the media to dry out for several hours or days if necessary.
6. Reinstall using the reverse procedure. Run the unit. It may take several hours for the desiccant to dry out and for the wheel to perform normally.

Variable frequency controller
No maintenance should be required on the VFD. Should problems with the VFD develop, consult the VFD service manual, that accompanied your order or call NovelAire for service information.
## Section 7
### Troubleshooting

Use the following chart to diagnose and correct problems:

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate Wheel Performance</td>
<td>Check wheel rotation speed</td>
</tr>
<tr>
<td></td>
<td>Check for wheel integrity and adjust seals or replace worn seals</td>
</tr>
<tr>
<td></td>
<td>Check entering air conditions and compare to design</td>
</tr>
<tr>
<td></td>
<td>Check ducting for leakage and fix any leaks</td>
</tr>
<tr>
<td></td>
<td>Check media for dirt and clean per cleaning instructions</td>
</tr>
<tr>
<td>Improper Wheel Rotation</td>
<td>Check drive belts for engagement with sheave</td>
</tr>
<tr>
<td></td>
<td>Check drive motor</td>
</tr>
<tr>
<td></td>
<td>Check drive motor wiring for proper voltage</td>
</tr>
<tr>
<td></td>
<td>Check VFD programming</td>
</tr>
<tr>
<td></td>
<td>Check VFD input sensor (temp/RH) for malfunctioning</td>
</tr>
<tr>
<td>High Pressure Drop</td>
<td>Check air flow compare to design</td>
</tr>
<tr>
<td></td>
<td>Check filters and clean/replace as necessary</td>
</tr>
<tr>
<td></td>
<td>Check media for pluggage and clean per cleaning instructions</td>
</tr>
<tr>
<td>Noise</td>
<td>Check seals and adjust as necessary</td>
</tr>
<tr>
<td></td>
<td>Check the bearings for source of noise</td>
</tr>
<tr>
<td></td>
<td>Check the belts for slippage</td>
</tr>
</tbody>
</table>
### Appendix 1
#### VFD Schematics

<table>
<thead>
<tr>
<th>Model</th>
<th>VFDU</th>
<th>220V 3-phase</th>
<th>208V</th>
<th>120V</th>
<th>230V 3-phase</th>
<th>208V</th>
<th>120V</th>
<th>230V 3-phase</th>
<th>208V</th>
<th>120V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. output motor current (HP)</td>
<td>0.13 (0.1)</td>
<td>0.05 (0.02)</td>
<td>0.15 (0.05)</td>
<td>0.1 (0.06)</td>
<td>0.2 (0.12)</td>
<td>0.1 (0.06)</td>
<td>0.15 (0.05)</td>
<td>0.2 (0.12)</td>
<td>0.1 (0.06)</td>
<td>0.15 (0.05)</td>
</tr>
<tr>
<td>Frequency capacity (kHz)</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
<td>0.3 to 400</td>
</tr>
<tr>
<td>Rated output current (A)</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
<td>0.15</td>
</tr>
<tr>
<td>Max. output frequency (Hz)</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
<td>400Hz</td>
</tr>
</tbody>
</table>

### Standard Connection Diagram

![Standard Connection Diagram](image)

### Terminal Description

<table>
<thead>
<tr>
<th>Type</th>
<th>Terminal</th>
<th>Terminal Name</th>
<th>Terminal Function (Signal Level)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Contact</td>
<td>L1, L2, L1M</td>
<td>AC power supply input</td>
<td>L1 (R) and L2 (S) for single-phase power supply</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>B1, B2</td>
<td>Inverter output</td>
<td>For inverter output</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>E (0)</td>
<td>Braking resistor connection</td>
<td>For braking resistor connection</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>SE</td>
<td>Forward Run/Stop</td>
<td>After wiring: when &quot;on&quot;, forward when &quot;off&quot;, reverse</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>SR</td>
<td>Reverse Run/Stop</td>
<td>After wiring: when &quot;on&quot;, reverse when &quot;off&quot;</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>ST</td>
<td>Multi-function contact input 1</td>
<td>Factory preset: &quot;multi-step&quot; when &quot;input&quot;</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>S2</td>
<td>Multi-function contact input 2</td>
<td>Factory preset: &quot;multi-step&quot; when &quot;input&quot;</td>
</tr>
<tr>
<td>Multi-Contact</td>
<td>SM</td>
<td>Multi-function contact input 3</td>
<td>Factory preset: &quot;multi-step&quot; when &quot;input&quot;</td>
</tr>
</tbody>
</table>

### Control Circuit

<table>
<thead>
<tr>
<th>Frequency Reference</th>
<th>Sequence</th>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Setting</td>
<td>FS</td>
<td>0 Hz to 120 Hz or 0 to 240 Hz</td>
</tr>
<tr>
<td>Reference Input</td>
<td>FR</td>
<td>0 Hz to 120 Hz or 0 to 240 Hz</td>
</tr>
<tr>
<td>Frequency Reference</td>
<td>PC</td>
<td>0 Hz to 120 Hz or 0 to 240 Hz</td>
</tr>
</tbody>
</table>

### Motor Circuit

<table>
<thead>
<tr>
<th>Contact</th>
<th>AC</th>
<th>Analog output terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog output terminal</td>
<td>0 V to 10VDC, 4mA to 20mA</td>
<td></td>
</tr>
</tbody>
</table>

### Analog Monitor

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog monitor</td>
<td>Factory preset: &quot;multi-step&quot; when &quot;input&quot;</td>
</tr>
<tr>
<td>Photoelectric output</td>
<td>0 V to 10VDC, 4mA to 20mA</td>
</tr>
<tr>
<td>N.O. contact output</td>
<td>0 V to 10VDC, 4mA to 20mA</td>
</tr>
<tr>
<td>Contact output terminal</td>
<td>0 V to 10VDC, 4mA to 20mA</td>
</tr>
<tr>
<td>Photoelectric output</td>
<td>0 V to 10VDC, 4mA to 20mA</td>
</tr>
<tr>
<td>Photoelectric output</td>
<td>0 V to 10VDC, 4mA to 20mA</td>
</tr>
</tbody>
</table>

### Wiring Distance between Inverter and Motor

- Open circuit (200 m)
- 100 m or less
HOW TO MEASURE, ASSEMBLE & INSTALL

I. HOW TO MEASURE
Pull belt tight around sheaves to check hand tight length, overlapping the last two tabs with two holes in matching links as shown. Count the number of links and remove one link for every 24 of 0/3L, A/4L and B/5L Sections, and one link for every 20 of C and D Sections. This gives the correct installed belt length and will ensure optimum belt tension when running. Note: Every tenth link is designated with an arrow (→). For multiple belt drives, ensure that each belt has the same number of links.

COMMENT MESURER, MONTER ET INSTALLER

I. COMMENT MESURER
Serrez la courroie autour des poulies pour vérifier la longueur correcte, en chevauchant les deux dernières languettes avec deux trous dans les maillons correspondants, comme l'indique la photo. Comptez le numéro de maillons et enlevez un maillon pour tous les 24 de Sections 0/3L, A/4L et B/5L, et un maillon pour tous les 20 des Sections C et D. Cela donne la longueur correcte de la courroie installée et assure la tension optimale de la courroie pendant le fonctionnement. Note: Tous les dix maillons sont marqués avec une flèche (→). Pour les transmissions à courroies multiples, assurez-vous qu'il y a le même numéro de maillons sur chaque courroie.

II. DISASSEMBLY
Hold belt upside down. Bend back as far as possible, hold with one hand. Twist one tab 90° parallel with slot.

COMO MEDIR, MONTAR Y INSTALAR

I. COMO MEDIR
Apriete la banda alrededor de las poleas para verificar la longitud correcta, traslapando las dos últimas linguétas con los dos agujeros en los estabones correspondientes como muestra la foto. Cuenta el número de estabones y quite un establo por cada 24 de Secciones 0/3L, A/4L y B/5L, y un establo por cada 20 de las Secciones C y D. Esto da la longitud correcta de la banda montada y asegura la tensión óptima de la banda durante el funcionamiento. Nota: Cada diez estabones están marcados con una flecha (→). Asegúrese de que cada banda tiene el mismo número de estabones en las transmisiones de bandas múltiples.

II. DEMONTAGE
Tenez la courroie à l'envers. Pliez en arrière autant que possible; tenez-la avec une main. Tournez une languette 90°, parallèle à la ranure.

II. DESMONTAJE
Sujete la banda con la parte de arriba abajo y cople hacia atrás tanto como pueda. Sujete con una mano, haciendo girar una lengüeta 90°, paralelo a la ranura.

Pull end of link over tab.

Tirez le bout du maillon sur la languette.

Tire del extremo del establo, sobre la lengüeta.

Rotate belt end with tab 90°.

Tourner le bout de la courroie 90° avec la languette.

Haga girar el extremo de la banda 90° con la lengüeta.

Pull belt end through two links.

Faites passer le bout de la courroie à travers deux maillons.

Tire del extremo de la banda a través de dos estabones.

10
III. ASSEMBLY
Hold belt with tabs pointing outward.
Place end tab through two links at once.
Flex belt further and insert second tab through end link by twisting tab with thumb.
Ensure tab returns to position across belt. Reverse belt so tabs run inside.

IMPORTANT—Turn Belt INSIDE OUT
(As shown) To Ensure Easy Assembly and Disassembly

III. MONTAGE
Tenez la courroie, les languettes dirigées vers l'extérieur.
Faites passer la languette de bout à travers deux maillons à la fois.
Pliez la courroie davantage et introduisez la deuxième languette dans le maillon de bout, en tournant la languette avec le pouce.
Assurez-vous que la languette revient à sa position en travers la courroie.
Retournez la courroie de manière que les languettes passent à l'intérieur.

III. MONTAJE
Sujete la banda, con las lengüetas hacia afuera.
Meta la lengüeta de extremo a través de dos eslabones a la vez.
Doble la banda más y introduzca la segunda lengüeta a través del eslabón de extremo, haciendo girar la lengüeta con el pulgar.
Asegúrese de que la lengüeta vuelve a su posición a través de la banda. Vuelva la banda de manera que las lengüetas pasen hacia dentro.

IV. INSTALLATION
1. Turn belt with tabs to the inside before installing.
2. Determine direction of drive rotation.
3. Align belt directional arrow (→) with drive rotation.
4. Fit belt in nearest groove of smaller sheave.
5. Roll belt onto larger sheave, turning the drive slowly. Belt may seem very tight; this is okay; DO NOT JOG MOTOR.
6. Check to see all tabs are still in their correct position and are not twisted out of alignment.
7. For multiple belt drives, work belt from groove to groove. On particularly wide drives, it may be easier to install half the belts from the inboard side and half from the outboard. Note: With drive ratios around 1:1, it may be necessary to add back one link to allow belts to be rolled on. This does not apply if using Alternative Installation Method.

IV. INSTALACIÓN
1. Vuelva la banda, con las lengüetas hacia dentro, antes de instalarla.
2. Determine el sentido de rotación de la transmisión.
3. Alinee la flecha de dirección (→) de la banda con la rotación de la transmisión.
4. Coloque la banda en la ranura más cercana de la polea más pequeña.
5. Coloque la banda en la polea más grande, haciendo girar lentamente la transmisión. La banda puede parecer apretada, pero, no importa. NO AVANCE POCO A POCO EL MOTOR.
6. Verifique que todas las lengüetas están todavía en sus posiciones correctas y que no están desalineadas.
7. En cuanto a las transmisiones de bandas múltiples, coloque la banda, trabajando de ranura a ranura. En las transmisiones especialmente anchas, puede ser más fácil de montar la mitad de las bandas desde el lado interior y la otra mitad de las bandas desde el lado exterior. Nota: Con razones de transmisión de aproximadamente 1:1, puede ser necesario reinstalar un eslabón para permitir la colocación de las bandas. No se aplica al Método Alternativo de Instalación.
V. ALTERNATIVE INSTALLATION METHOD
1. Set motor to mid position of adjustment range and mark base clearly.
2. Determine required belt length as in I.
3. Push motor forward to minimum center distance.
4. Install belts as in IV.
5. Pull motor back to previously marked mid position.

VI. RETENTIONING
Like all high performance V-belts, PowerTwist Plus V-Belts require the maintenance of correct drive tension to operate efficiently. Experience indicates that drive tension should be checked after 24 hours running at full load. A retention may be necessary depending on the severity of the drive. Any initial belt stretch is then taken up. Subsequently, belt tension should be checked periodically and adjusted when necessary.

V. METHODE ALTERNATIVE D'INSTALLATION
1. Régliez le moteur au milieu de la plage de réglage et marquez la base clairement.
2. Déterminez la longueur exigée de la courroie suivant le numéro I.
3. Poussez le moteur en avant jusqu'à la distance de centre en centre minimale.
4. Montez les courroies suivant le numéro IV.
5. Tirez le moteur en arrière à la position centrale déjà marquée.

VI. RETENSIÓN
Como todas las correas en V de alto rendimiento, las Correas en V PowerTwist Plus exigen el mantenimiento de la tensión correcta de la transmisión. La experiencia muestra que se debe verificar la tensión de transmisión después de 24 horas de marcha a plena carga. Puede ser necesario atesar de nuevo según la severidad de la transmisión. Así se compensa todo alargamiento inicial de la banda. A partir de entonces, la tensión de la banda debe ser verificada de vez en cuando y ajustada según sea necesario.

V. METODO ALTERNATIVO DE INSTALACION
1. Monte el motor a la posición media de la gama de reglaje y marque la base claramente.
2. Determine la longitud requerida de la banda, según el número I.
3. Empuje el motor hacia adelante a la distancia entre ejes mínima.
4. Monte las bandas, según el número IV.
5. Tire el motor hacia atrás a la posición media marcada anteriormente.