 THE NEW YORK BLOWER COMPANY 7660 Quincy Street Willowbrook, IL 60527-5530 Visit us on the Web: http://www.nyb.com Phone: (800) 208-7918 Email: nyb@nyb.com	Installation, Maintenance, and Operation Manual		
	Product:	Pressure Blower, Arrangement 4 Size 2606, STL, UB, CW	
	File No.	2021-07756-01	Customer PO:
	Customer:	Compressors For Manufacturing Inc.	

WORD ABOUT SAFETY

Beginning in June 2012, the **WARNING** signage to the right has been placed on all **nyb** fans, as specified by ISO and recommended by the European Union. Air moving equipment involves electrical wiring, moving parts, sound, and air velocity or pressure which can create safety hazards if the equipment is not properly installed, operated and maintained. To minimize this danger, follow these instructions as well as the additional instructions and warnings on the equipment itself. All installers, operators and maintenance personnel should study AMCA Publication 410, "Recommended Safety Practices for Air Moving Devices", which is included as part of every shipment. Additional copies can be obtained by writing to New York Blower Company, 7660 Quincy St., Willowbrook, IL 60527.



ELECTRICAL DISCONNECTS

Every motor driven fan should have an independent disconnect switch to isolate the unit from the electrical supply. It should be near the fan and must be capable of being locked by maintenance personnel while servicing the unit, in accordance with OSHA procedures.

MOVING PARTS

All moving parts must have guards to protect personnel. Safety requirements vary, so the number and type of guards needed to meet company, local and OSHA standards must be determined and specified by the user. Never start a fan without having all safety guards installed. Check regularly for damaged or missing guards and do not operate any fan with guards removed. Fans can also become dangerous because of potential "windmilling", even though all electrical power is disconnected. Always block the rotating assembly before working on any moving parts.

SOUND

Some fans can generate sound that could be hazardous to exposed personnel. It is the responsibility of the system designer and user to determine sound levels of the system, the degree of personnel exposure, and to comply with applicable safety requirements to protect personnel from excessive noise. Consult **nyb** for fan sound power level ratings.

AIR PRESSURE AND SUCTION

In addition to the normal dangers of rotating machinery, fans present another hazard from the suction created at the fan inlet. This suction can draw materials into the fan where they become high velocity projectiles at the outlet. It can also be extremely dangerous to persons in close proximity to the inlet, as the forces involved can overcome the strength of most individuals. Inlets and outlets that are not ducted should be screened to prevent entry and discharge of solid objects.

ACCESS DOORS

The DANGER decal to the right is placed on all **nyb** cleanout doors. These doors, as well as access doors to the duct system, should never be opened while the fan is in operation. Serious injury could result from the effects of air pressure or suction. Quick-opening doors must have the door handle bolts securely tightened to prevent accidental or unauthorized opening. Bolted doors must be tightened for the same reason.



Danger:
Do not Enter/Confined Space

RECEIVING AND INSPECTION

The fan and accessories should be inspected on receipt for any shipping damage. Turn the wheel by hand to see that it rotates freely and does not bind. If dampers or shutters are provided, check these accessories for free operation of all moving parts. F.O.B. factory shipping terms require that the receiver be responsible for inspecting the equipment upon arrival. Note damage or shortages on the Bill of Lading and file any claims for damage or loss in transit. **nyb** will assist the customer as much as possible; however, claims must be originated at the point of delivery.

HANDLING

Fans should be lifted by the base, mounting supports, or lifting eyes/lugs only. Never lift a fan by the wheel, shaft, motor, motor bracket, housing inlet, outlet, or any fan part not designed for lifting. A spreader should be used to avoid damage. On direct drive Arrangement 7 or 8 fans, lifting holes are provided in the motor base to assist in handling the fan assembly. These lifting holes should be used in conjunction with the lifting eyes/lugs when lifting and positioning the fan onto its foundation. A heavy round steel bar or appropriate fixture can be passed through the lifting holes to simplify attachment of the lifting device. Be sure to follow all local safety codes when moving heavy equipment.

STORAGE

Whenever possible, fans and accessories should be stored in a clean, dry location to prevent rust and corrosion of steel components. If outdoor storage is necessary, protection should be provided. Cover the inlet and outlet to prevent the accumulation of dirt and moisture in the housing. Cover motors with waterproof material. Remove any fan and motor drain plugs to minimize moisture buildup. Refer to the motor manufacturer's IM manual for further motor storage instructions.

Any stored bearing can be damaged by condensation caused by temperature variations. Therefore, **nyb** fan bearings are filled with grease at the factory to exclude air and moisture. Such protection is adequate for shipment and subsequent immediate installation and operation.

For long term or outdoor storage, mounted bearings should be immediately regreased and wrapped with plastic for protection. Split housed bearings may require additional grease to completely fill the bearing housing cavity. **Rotate the fan wheel and motor shaft by hand at least every two weeks to redistribute grease on internal bearing parts.** Each month the fan and motor bearings should be purged with new grease to remove condensation, since even a filled bearing can accumulate moisture. Use caution when purging, as excessive pressure can damage the seals. Rotate the shaft while slowly adding grease.

For Belt-Driven units, belts should be slackened to prevent damage to shaft, belts, and bearings.

Check shutters for free operation and lubricate moving parts prior to storage. Inspect the stored unit periodically to ensure the above precautionary storage measures are still in tact.

Prior to start-up, split housed bearings should have excess grease removed such that the grease level is level with the bottom of the shaft.

FAN INSTALLATION

nyb wheels are dynamically balanced when fabricated. Fully assembled fans are test run at operating speeds to check the entire assembly for conformance to **nyb** vibration limits. Nevertheless, all units must be adequately supported for smooth operation. **Ductwork or stacks should be independently supported as excess weight may distort the fan housing and cause contact between moving parts. nyb recommends using flexible connectors at the inlet and outlet to prevent vibration transmission from the fan to the system and vice versa.** Flexible connectors also eliminate loading issues stemming from thermal expansion in systems with high temperature air systems. Where vibration isolators are used, consult the **nyb** certified drawing for proper location and adjustment.

Slab-Mounted Units

A correctly designed and level concrete foundation provides the best means of installing floor-mounted fans. The mass of the base must maintain the fan/driver alignment, absorb normal vibration, and resist lateral loads. The overall dimensions of the concrete base should extend at least six inches beyond the base of the fan. The weight of the slab should be two to three times the weight of the rotating assembly, including the motor. The foundation requires firmly anchored fasteners such as the anchor bolts shown in Figure 1. Hammer-drilled expansion fasteners can be used in less demanding applications.

Move the fan to the mounting location and lower it over the anchor bolts, leveling and supporting the fan base with shims at each bolt hole location. Fasten the fan securely, ensuring that the fan base is not put into a bind when tightening anchor bolts. This may cause distortion that can be transferred to the bearing housings, causing excessive vibration and premature bearing failure. You should consider grouting in fans sized 40 and larger. When grout is used, shim the fan at least 3/4-inch from the concrete base. Do not rely on grout to support the fan structure. (See Figure 1.) When isolation is used, check the **nyb** certified drawing for installation instructions.

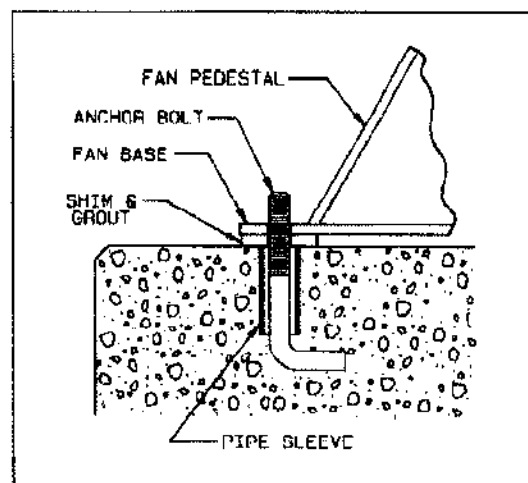


Figure 1

Elevated Units

When an elevated or suspended structural steel platform is used, it must have sufficient bracing to support the unit load and prevent side sway. A poorly designed support structure can experience resonance triggered by the fan operating speed. The platform should be of welded construction to maintain permanent alignment of all members.

START-UP

A start-up checklist is available on nyb's Maintenance manuals page under the support tools menu.

Visit the following link to view the checklist: <https://www.nyb.com/pdf/Catalog/landM/NYBStartUpChecklist.pdf>

Safe operation and maintenance includes the selection and use of appropriate safety accessories for the specific installation. This is the responsibility of the system designer and requires consideration of equipment location and accessibility as well as adjacent components. All safety accessories must be installed properly prior to start-up.

Safe operating speed is a function of system temperature and wheel design. Do not under any circumstances exceed the maximum safe fan speed published in your nyb certified drawing package, which is available from your nyb field sales representative.

Procedure

1. If the drive components are not supplied by nyb, verify with the manufacturer that the starting torque is adequate for the speed and inertia of the fan.
2. Inspect the installation prior to starting the fan. Check for any loose items or debris that could be drawn into the fan or dislodged by the fan discharge. Check the interior of the fan as well. Turn the wheel by hand to check for binding.
3. Check drive installation and belt tension.
4. Check the tightness of all setscrews, nuts and bolts. Ensure that anchor bolts are also properly torqued. When furnished, tighten hub setscrews with the wheel oriented so that the setscrew is positioned underneath the shaft.
5. Install all remaining safety devices and guards. Verify that the supply voltage is correct and wire the motor.
6. Check to ensure that neither the fan nor motor shaft are rotating.
7. "Bump" the starter to check for proper wheel rotation.
8. Use extreme caution when testing the fan with ducting disconnected. Apply power and check for unusual sounds or excessive vibration. If either exists, see the section on Common Fan Problems. To avoid motor overload, do not run the fan for more than a few seconds if ductwork is not fully installed. Without the ductwork attached, normal operating speed may not be obtained without motor overload. Once ductwork is attached, check for correct fan speed and complete installation. Ductwork and guards must be fully installed for safety.

NOTE: Shut the fan down immediately if there is any sudden increase in fan vibration.

Fan Shutoff for Fans with Elevated Airstream Temperatures (Greater than 200° F)

High temperature, rotating equipment such as fans must be protected from "heat soaking". Fan wheels must be rotating whenever the airstream temperature is above 200°F. to prevent the shaft from "sagging" causing a permanent bend in the shaft. After the airstream temperature has fallen below 200°F, the fan can be shutdown. Start-up and shut down procedures are required to prevent this. If a power failure occurs, rotate the shaft manually if necessary.

If a shaft is bent due to heat soaking or binding a sudden increase in fan vibration will occur. The shaft will need to be removed, checked for straightness and straightened or replaced.

FAN MAINTENANCE

nyb fans are manufactured to high standards with quality materials and components. Proper maintenance will ensure a long and trouble-free service life. **Do not attempt any maintenance on a fan unless the electrical supply has been completely disconnected and locked out.** In many cases, a fan can windmill despite removal of all electrical power. The rotating assembly should be blocked securely before attempting maintenance of any kind.

The key to good fan maintenance is regular and systematic inspection of all fan parts. Inspection frequency is determined by the severity of the application and local conditions. Strict adherence to an inspection schedule is essential.

Regular fan maintenance should include the following:

1. Check the fan wheel for any wear or corrosion, as either can cause catastrophic failures. Check also for the buildup of material which can cause unbalance resulting in vibration, bearing wear and serious safety hazards. Clean or replace the wheel as required.
2. Check the V-belt drive for proper alignment and tension (see section on V-belt drives). If belts are worn, replace them as a set, matched to within manufacturer's tolerances. Lubricate the coupling of direct-drive units and check for alignment (see section on couplings).
3. Lubricate the bearings, but do not over lubricate (see the bearing section for detailed specifications).
4. Ceramic-felt shaft seals require no maintenance, although worn seals should be replaced. When lip-type shaft seals are provided, lubricate them with "NEVER-SEEZ" or other anti-seize compound. Schedule in accordance with the bearing lubrication table.

WARNING: Do not remove or loosen the fan hub from the fan wheel. Removing or loosening the fan hub from the fan wheel will cause imbalance and void the warranty.

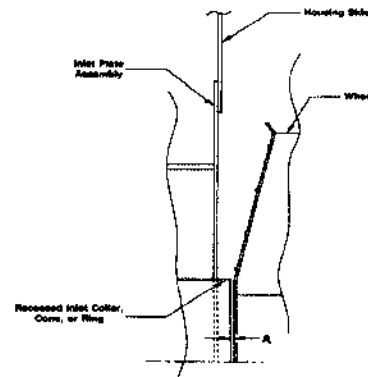
5. During any routine maintenance, all setscrews and bolts should be checked for tightness. See the corresponding table for correct torques.

6. When installing a new wheel or cone, the proper wheel-to-inlet cone clearance must be maintained (see Figure 3 for correct wheel dimension).
7. **WARNING:** When installing any new rotating components (wheel, shaft, bearings, coupling, drive components, or motor), it is recommended that the procedures in the Start-Up section are followed. Fan vibration readings should be taken and a trim balance be performed if excessive vibration is experienced.

WHEEL CONE CLEARANCE

Figure 3 (Dimensions are in inches)

Fan Size	"A" Dim
2606	1/8



WHEEL BALANCE

Airstreams containing particulate or chemicals can cause abrasion or corrosion of the fan parts. This wear is often uneven and can lead to significant wheel imbalance over time. When such wear is discovered, a decision must be made as to whether to rebalance or replace the wheel.

The soundness of all parts should be determined if the original thickness of components is reduced. Be sure there is no hidden structural damage. The airstream components should also be cleaned to remove any build-up of foreign material. Specialized equipment can be used to rebalance a cleaned wheel that is considered structurally sound.

Balance weights should be rigidly attached at a point that will not interfere with the housing nor disrupt airflow. Remember that centrifugal forces can be extremely high at the outer radius of a fan wheel. Welding is the preferred method of balance weight attachment. Be sure to ground the welder directly to the fan wheel. Otherwise, the welding current could pass through the fan bearings and damage them.

GOVERNMENT WARNINGS

Disposal of material should be made in accordance to local government regulations.

California Prop 65 - WARNING: This product contains a chemical known to the state of California to cause cancer and/or birth defects or other reproductive harm.

COMMON FAN PROBLEMS

Excessive Vibration

A common complaint regarding industrial fans is "excessive vibration". **nyb** is careful to ensure that each unit is precisely balanced prior to shipment; however, there are many other causes of vibration including:

1. Loose mounting bolts, setscrews, bearings or couplings.
2. Misalignment or excessive wear of couplings or bearings.
3. Misaligned or unbalanced motor.
4. Bent shaft due to mishandling or material impact.
5. Accumulation of foreign material on the wheel.
6. Excessive wear or erosion of the wheel.
7. Excessive system pressure or restriction of airflow due to closed dampers.
8. Inadequate structural support, mounting procedures or materials.
9. Externally transmitted vibration.

Premature Component Failure

1. Prolonged or major vibration.
2. Inadequate or improper maintenance.
3. Abrasive or corrosive elements in the airstream or surrounding environment.
4. Misalignment or physical damage to rotating components or bearings.
5. Bearing failure from incorrect or contaminated lubricant or grounding through the bearings while arc welding.
6. Excessive fan speed.
7. Extreme ambient or airstream temperatures.
8. Improper belt tension.
9. Improper tightening of wheel setscrews.

Inadequate Performance

1. Incorrect testing procedures or calculations.
2. Fan running too slowly.
3. Fan wheel rotating in wrong direction or installed backwards on shaft.
4. Wheel not properly centered relative to inlet cone.
5. Damaged or incorrectly installed cut off sheet or diverter.
6. Poor system design, closed dampers, air leaks, clogged filters, or coils.
7. Obstructions or sharp elbows near inlets.
8. Sharp deflection of airstream at fan outlet.

Excessive Noise

1. Fan operating near "stall" due to incorrect system design or installation.
2. Vibration originating elsewhere in the system.
3. System resonance or pulsation.
4. Improper location or orientation of fan intake and discharge.
5. Inadequate or faulty design of supporting structures.
6. Nearby sound reflecting surfaces.
7. Loose accessories or components.
8. Loose drive belts.
9. Worn bearings.

REPLACEMENT PARTS

It is recommended that only factory-supplied replacement parts be used. **nyb** fan parts are built to be fully compatible with the original fan, using specific alloys and tolerances. These parts carry a standard **nyb** warranty.

When ordering replacement parts, specify the part name, **nyb** shop and sequence number, fan size, type, rotation (viewed from drive end), arrangement and bearing size or bore. Most of this information is on the metal nameplate attached to the fan base. For assistance in selecting replacement parts, contact your local **nyb** representative or visit the below link:

<https://www.nyb.com/replacement-parts-form/>

Order Example (prior to 2013):

Part required: Wheel
Shop/control number: B-10106-100
Fan description: 33" PLR
Clockwise rotation
Arrangement: 1
Bearing: Link-Belt P335, 2-3/16 Bore

Order Example (after to 2013):

Part required: Wheel
Shop number: 2013-XXXXXX Wheel
Fan description: 36 ACF
Year of Manufacture: 2013
Fan Description: ACF SW Fan Class
3 Arr-9

Suggested replacement/component parts include:

Wheel	-	Damper
Shaft	-	Motor
Bearings	-	Coupling
Shaft Seal	-	Sheaves
Inlet Cone	-	V-Belts

LIMITED PRODUCT WARRANTY

All products are warranted by nyb to be free from defects in materials and workmanship for a period of one (1) year after shipment from its plant, provided buyer demonstrates to satisfaction of nyb that the product was properly installed and maintained in accordance with nyb's instructions and recommendations and that it was used under normal operating conditions.

This warranty is limited to the replacing and/or repairing by nyb of any part or parts which have been returned to with nyb's written authorization and which in nyb's opinion are defective. Parts not manufactured by nyb but installed by nyb in equipment sold to the buyer shall carry the original manufacturer's warranty only. All transportation charges and any and all sales and use taxes, duties, imports or excises for such part or parts shall be paid for by the buyer. nyb shall have the sole right to determine whether defective parts shall be repaired or replaced.

This warranty does not cover any customer labor charges for replacement of parts, adjustments or repairs, or any other work unless such charges shall be assumed or authorized in advance, in writing, by nyb.

This warranty does not cover any product which, in the judgement of nyb, has been subject to misuse or neglect, or which has been repaired or altered outside nyb's plant in any way which may have impaired its safety, operation or efficiency, or any product which has been subject to accident.

This warranty shall be null and void if any part not manufactured or supplied by nyb for use in any of its products shall have been substituted and used in place of a part manufactured or supplied by nyb for such use. There are no warranties, other than those appearing on the acknowledgement form **INCLUDING NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**, given in connection with the sale of the goods sold hereunder. The buyer agrees that his sole and exclusive remedy, and the limit of nyb's liability for loss from any cause whatsoever, shall be the purchase price of the goods sold hereunder for which a claim is made.



INFORMATION AND WARNINGS ON ALL NYB FANS

Beginning in June 2012, warning signage has been placed on all nyb fans in the form of readily understandable symbols or pictograms, as specified by ISO and recommended by the European Union. The following is a brief description of each pictogram:



General Hazard



Hand Crush from above



Electrical Hazard due to motor



Entanglement of Hand/Rotating Shaft



Danger of having hands or fingers cut



Do Not Enter/Confined Space



Hand Crush / Pinch Point



Mandatory Instructions:

Lock Power Supply in Off Position and wait for shaft to stop rotating prior to opening and servicing



Possibility of entanglement of hand or fingers



Read Installation, Maintenance, and Operating Manual



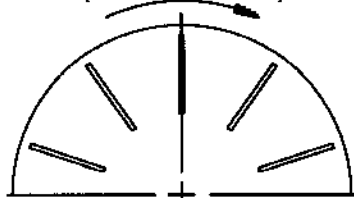
Hot Surfaces



Lift Here

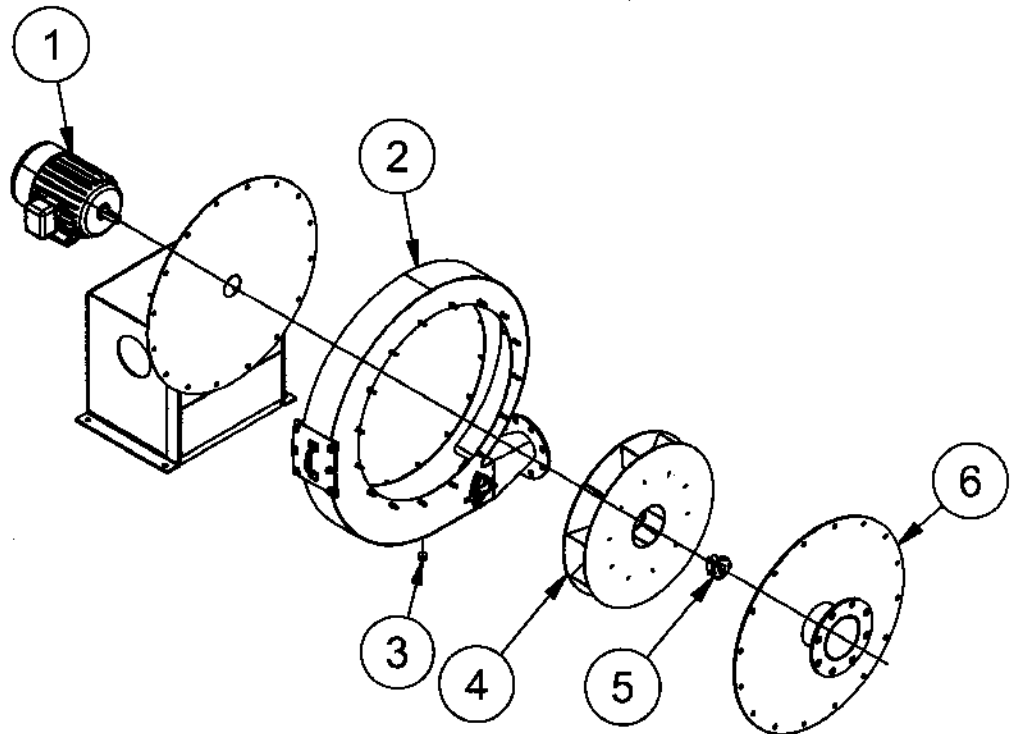
WHEEL ROTATION AS VIEWED FROM DRIVE SIDE

(CLOCKWISE)



PB ST

ARROW INDICATES CORRECT ROTATION



File Number: 2021-07756-01
Fan Type: Pressure Blower, Arrangement 4
Size 2606, STL, UB, CW

#	REPLACEMENT PARTS	
	ITEM TYPE	PART #
(1)	MOTOR	A9501925WEG
(2)	HOUSING	PB HOUSING DJ CSTM369970
(3)	DRAIN PLUG	A9800487
(4)	WHEEL	A7600766
(5)	BUSHING	A9900296
(6)	INLET ASSEMBLY	A7704275

****NOTE:** Actual fan discharge and rotation may be different from pictured fan in the exploded view.



Acquisition OFF
17 May 2001 12:20:03

0	Initial Run
1	Initial Weight 1
2	Initial Run 1
3	Initial Solution
4	Initial Run
5	Initial Solution

Ctrl	Instrument Name	Description	Initial	Initial	Initial
1	IBH	1x Amp (-ps)	0.0824	0.00	0.00
2	IBV	1x Pils (°)	0.029	0.00	0.00
3	OBH	1x Amp (-ps)	0.0433	0.00	0.00
4	OBV	1x Pils (°)	0.0442	0.00	0.00
5		1x Pils (°)	0.0731	0.00	0.00

Notes and Comments

These readings were achieved on a rigid test block in The New Bower factory. Foundation design and fan installation are the responsibility of the installer. It is expected that the foundation upon which the fan is mounted provide adequate support and stability. Other factors such as impeller cleanliness, aerodynamic conditions and background vibration.

Initial Run 3573.4 RPM < IBH: 0.0824 @ 0.29 > < IBV: 0.0433 @ 105 > < OBH: 0.0731 @ 0.32 > < OBV: 0.0442 @ 105 >

