

GENTLE AIR BLOWN FIBER BLOWING MACHINE WITH CLUTCH

for Round FiberOPERATION & MAINTENANCE



GENTLE AIR – USA CABLE BLOWING MACHINE

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QC Final Inspection by:	Date:
Unit Serial Number:	
Build Date:	

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GMP Limited Warranty can be found at http://www.gmptools.com/warranty/



1. SAFETY INSTRUCTIONS

WORK AREA AND GENERAL SAFETY

This Equipment should be used only by personnel who have been given the appropriate training and who are competent to use it.

These instructions are to be made available to operators of this equipment at all times. Failure to observe these safety instructions could result in serious personal injury and/or property damage.

- 1. Read and understand the operation and maintenance manual supplied with this equipment. Keep it in a convenient place for future reference.
- 2. Keep children and untrained personnel away from this equipment while in operation.
- 3. Keep all guards and safety devices in place. Do not operate this equipment with guards removed or damaged.
- 4. Keep hands, feet and loose clothing away from moving parts, especially at cable entry points.
- 5. Always stop the machine and isolate compressed air and electrical services to carry out lubrication and servicing.
- 6. Check machine before starting for worn or damaged parts. Check for signs of loose nuts and bolts etc.
- 7. If machine is left unattended, insure that unauthorized use is prevented.
- 8. Never leave the machine unattended while in use.
- 9. Consider the use of safety barriers, especially when used in public places, observe all statutory requirements for working environments.
- 10. Beware of pinch points involved with rotating components.
- 11. Beware of hot surfaces, machine uses compressed air.
- 12. When operating machine always wear appropriate safety clothing, hearing protection, eye protection, hard hat, safety shoes and leather gloves, machine operates with compressed air at up to 220 psi.
- 13. Prior to installation insure the tube route is connected properly.
- 14. Beware of exposed electrical contacts. Do not touch, or allow metal objects to come into contact.
- 15. Machine may cause additional fire hazard if involved in an existing fire due to compressed air.



- 16. No personnel are to be in manholes or ducts when the Cable Blowing Machine is being operated.
- 17. The machine must be operated on firm ground.
- 18. Stay clear of cables or lines under tension.
- 19. Stay clear of pressurized air line and tube.
- 20. Only use the machine for its intended purpose. Do not use the roller drive without the air chamber to push or to retrieve cable or blow air in the far end of tube to help cable recovery.
- 21. Do not place cable drum too close to the Cable Blowing Machine.
- 22. Do not tamper with pressure relief valves or pressure reducing valves.
- 23. Ensure the cable drum rotates freely on its stand, the cable should leave from the top of the drum.
- 24. The cable should enter the machine in a clean and dry condition. In damp, dusty atmospheres, the cable should be cleaned continuously as it enters the machine.

FAILURE TO DO SO MAY RESULT IN PERSONAL INJURY, AS THE CABLE COULD BE EJECTED FROM THE CABLE BLOWING MACHINE WITH HIGH FORCE AND VELOCITY.



GENERAL PNEUMATIC SAFETY INSTRUCTIONS

The GMP Gentle Air is a pneumatic device, using pressurized air to project cable at high velocities. Please observe the following precautions when operating the Cable Blowing Machine:

- 1. Compressed air can cause flying debris. This could cause personal injury. Always wear personal protective equipment.
- 2. Ensure no personnel are in the manhole at the far end of the cable run. Severe personal injury may result.
- 3. Never open the air chamber when pressurized.
- 4. Only authorized, fully trained personnel should operate the air compressor.

GENERAL ELECTRICAL SAFETY INSTRUCTIONS

The machine has electronic circuits. Observe the following precautions to avoid electrical hazards:

- 1. Do not operate in water.
- 2. Do not expose the machine to rain.
- 3. Refer servicing to qualified service personnel.



2. Critical points that dramatically affect the operation of the cable blowing machine.

- Pressure on the cable should be set as per the instructions.
- Rollers to be closed at all times when cable is installed into machine.
- Cord seals in air chamber correctly fitted to provide good sealing.
- Correct cable seal fitted.
- Tube fully connected and pressure-tested.
- Tube connecting fittings are suitable for operating at 220 PSI air pressure.
- Tube clamp securely tightened.
- Compressor capacity 220 PSI and suitable for size of tube being used.
- Cable drum must be located directly behind and in line with the blowing machine.
- Air chamber, drive rollers, cable guides, must be clean and free from debris, sludge, dirt, water and lubricant.
- The cable must be hand guided into the blowing machine through a dry clean cloth by the operator wearing work gloves.
- Ensure the compressed air supply is not applied to the cable until required amount of cable has been installed.
- The counter/display is powered by (2) 9 volt batteries. To maximize battery life, turn display off by pressing power button on left side of display box when unit is not in use.



DISCLAIMER

General Machine Products (KT), LLC takes care in the design of its products to insure that the cable is protected during installation. Due to the variety and different methods of cable manufacture the responsibility of checking the cable compatibility with the equipment lies with the user. Therefore, GMP can not accept liability for any damage to the cable.



3. GENERAL DESCRIPTION

The GMP Gentle Air is designed to install blown fiber cable into micro tubes.

The Gentle Air uses a user supplied variable speed drill to drive a drive roller.

The pressure the roller applies to the cable is adjustable.

A full range of accessories is available to allow the machine to handle a wide range of cables and micro tubes.

The Gentle Air may be placed on a stand or on the optional tripod kit to bring the cable to a suitable height. The Gentle Air is supplied with a reinforced soft case which will protect the machine from damage during transit and storage.





On left is the Whisper assembled for a typical blowing operation. Shown is the unit with the optional Tripod Mounting Kit (P/N 89945) and a user supplied variable speed drill.

4. SPECIFICATIONS

Cable size: 0.039" to 0.118" 1.0 to 3.0mm

Tube size: (OD) 0.158" to 0.275" 4 to 7mm

Cable speed: 0-300 ft/min 0-90 m/min

Maximum air pressure: 220 psi. 15 bar.

Power requirements: Variable Speed Drill

with adjustable torque (not included)

Weight 12 lbs. approx. 5.4Kgs approx.

Dimensions (ht x length x width) 8.1" x 9.7" x 8.5" 206mm x 246mm x 216mm

5. OPERATING PROCEDURE

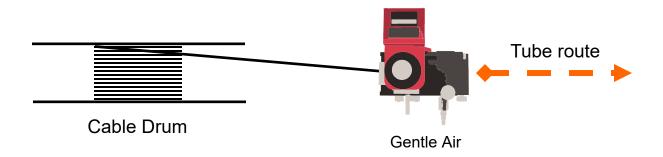
IT IS IMPERATIVE THAT ALL PERSONS USING, OPERATING OR MAINTAINING THIS CABLE BLOWING MACHINE:

- HAVE RECEIVED COMPREHENSIVE TRAINING IN THE USE OF THIS MACHINE.
- ARE COMPETENT AND AUTHORIZED TO USE IT AND HAVE READ AND UNDERSTAND THIS MANUAL.

GENERAL MACHINE PRODUCTS (KT), LLC CANNOT BE HELD RESPONSIBLE FOR MISUSE OF THIS EQUIPMENT.

Set up for installing cable with the machine mounted above ground:

- 1. Position the machine in line with the route of the duct.
- 2. Position the cable drum behind the machine and in line with the machine. See illustration below (this shows a plan view of the recommended set up).



- 3. Ensure the machine is secure (either on its own stand or a separate suitable stand).
- 4. Ensure the machine is fitted with the appropriate guides and collets to suit the cable being installed and the tubes into which the cable is to be installed. (See appendix 1 for details of interchangeable parts).

To set the machine up to install cable it will be necessary to:

- 1. Fit the tube into which the cable is to be installed into the tube clamp and air box.
- 2. Fit the cable through the machine. Adjust drive roller tension.
- 3. Connect the air supply to the machine.
- 4. Connect the variable speed drill to the machine.



Outfitting the Gentle Air

When preparing the Gentle Air for use, you must know the OD of the cable being blown and the size of the duct you are blowing in.

Preparing the Gentle Air for the proper cable size

Measure the OD of the cable. Select the corresponding cable collet assembly for the size cable you're blowing



P/N 89898, 89899



P/N 89929

CABLE SEAL COLLET ASSEMBLY

89929 1.0 - 2.0mm 89898 2.0 - 2.5mm 89899 2.5 - 3.0mm

Note: The 89929 cable seal collet assembly comes with 1 each of seals for 1.1mm, 1.6mm and 2.0mm



Install Cable Seal Collet Components into the Gentle Air

A. Install infeed guides

Install infeed guide by removing the two screws retaining the top block of the infeed guide holder. Secure the top and bottom guide halves with their retaining screws. Reattach the top block of the infeed guide holder.

B. Install Cable Guide



Place the guide in the grove on the exit side of the roller



Tighten the mounting screws.



Tighten the two screws retaining the top plate of the air-box in-feed guide for 2.0mm or larger. For 1.0 - 2.0mm, thread the fiber through the unit and into the duct before attaching the top plate

Preparing the Gentle Air for the proper duct size

Measure the OD of the duct. Select the corresponding tube collar and clamps



TUBE COLLET AND CLAMP ASSEMBLIES

89918 04mm O.D. 89919 05mm O.D. 89926 07mm O.D.

Loosen the thumb nut, rotate the swing bolt to open the air box

Insert the the top and bottom airbox halves and tighten the screws

Insert the top and bottom tube clamps aligning the grooved edge to the outside. Tighten the 4 screws.

Other tube sizes available –Contact GMP for information.

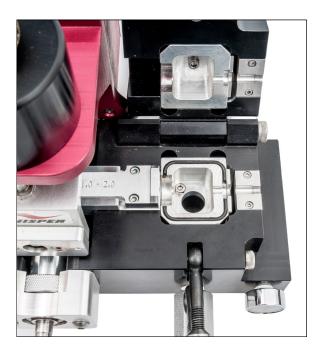
Fit the tube into the air box and tube clamp.

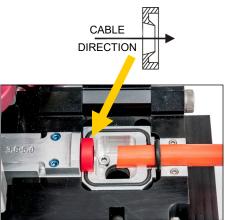
Slide a tube seal, sized for the tubing you are using, over the end of the tube.

Fit the tube into the air box housing as shown in the photo, positioning the tube seal so that it sits against the seal face.

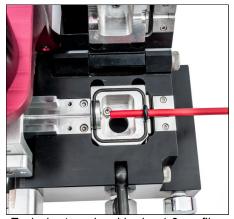
Positioning the tube further into the air box helps prevent the buckling of the fiber.

Place a cable seal sized to the cable you are blowing.





Typical setup when blowing 2-3mm fiber



Typical setup when blowing 1-2mm fiber



Fit the cable through the machine.



Back off the clamping screw turning CCW far enough to fit the cable between the rollers.



Pass the cable through the in-feed guide clamp, through the gap between the drive rollers. Continue to feed the cable through the cable seal into the airbox and into the duct.

For 1.0 -2.0mm, thread the fiber through the unit and into the duct before attaching the top plate on the cable guide.



Tighten the clamping screw until the tension indicator is at the second mark when using 1-2mm fiber and the third mark when using 2-3mm fiber. Some cables may require less clamping due to their size or construction. The amount of compression required will become clear as more experience is gained with the machine.

See appendix 2 for more information.

The roller tension is now set.
The cable is now positioned in the machine.



Tighten the airbox chamber/duct clamping screw tightly.

Connect the air supply to the machine.



The air inlet to the machine is a male fitting for a quick release coupling.



Check the battery with

Connect the variable speed drill to the machine.

The Gentle Air is designed to operate with a commercial quality 3/8" variable speed drill, preferably18 volts or larger and brushless.

See appendix 2 for proper setting of Gentle Air's clutch.

The machine is now ready to start the cable installation.

NOTE: THE MACHINE MUST NOT BE SUBMERGED IN WATER.

Installing Cable

Speed Distance indicator:

This device will measure and display the distance traveled by the cable and also the speed at which the cable is traveling. The functions are controlled by the small green push button on the right of the display. If this button is depressed twice, the display will "toggle" between speed and distance. Pressing the red button will reset the display to zero. Before starting an installation, it will be necessary to depress the red button to set the distance display to zero. Should it be necessary to replace the speed distance measuring indicator, it will be necessary to reprogram it.

To install cable:

- 1. Attach drill to Gentle Air drive motor shaft (if not already attached) and tighten drill chuck. Be sure that the drill is set in the forward or clockwise rotation setting and low speed.
- 2. Set the clutch torque setting starting at the minimum and work your way up.
- 3. Start air compressor and open air output valve, or if using nitrogen open the tank output valve to full flow. Keep the valve on the Gentle Air closed.
- 4. Activate cordless drill to desired speed and monitor distance and speed with the counter. Average installation speeds are between 150-300 FPM. It is sometimes necessary to gently hand assist the fiber cable into the cartridge to initiate forward motion. (Do Not Bend or Over Stress the cable.) When approximately 150' of cable is installed, gradually open the air valve on the Gentle Air
- 5. When cable exits duct end, take the desired amount of slack, stop drill and turn off air valve and allow it to vent all the residual air before opening airbox.
- 6. Turn the power off on the counter to preserve battery life when not in use.



6. Maintenance

The GMP Gentle Air has been designed to give reliable, trouble free service over long periods. The machine requires no sophisticated maintenance procedures, simple common sense checks and precautions are all that are needed.

The main source of breakdown and/or malfunction of a machine being used outdoors is contamination by the elements, this contamination may be introduced into the machine in a number of different ways.

There may be mud, dust or other contaminants carried into the machine on the cable or tube (there may be surface coatings of lubricants or other release type agents on the outer surfaces of the cable and tube, this could build up on the rollers and make them slip).

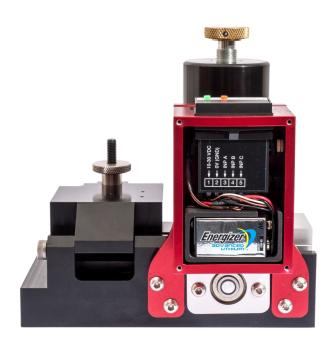
The machine may be set down on a muddy surface, or be splashed by vehicles when it is being used by the roadside.

Battery Replacement

Remove the cover by removing 4 screws

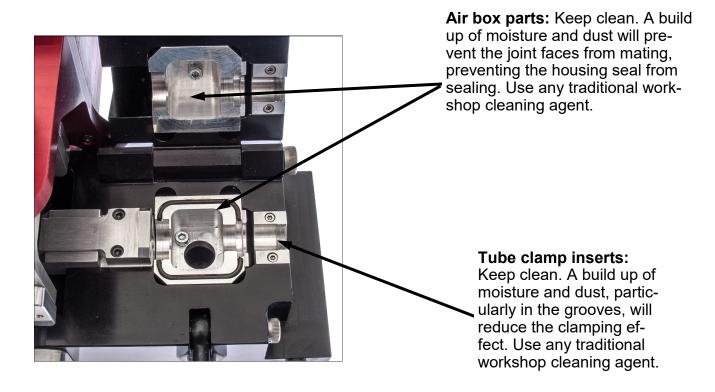
Replace batteries (2) 9 volt Lithium recommended

Replace the cover and the 4 screws





Battery Check—use supplied battery checker.



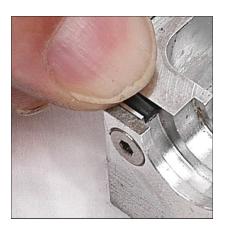
As a general rule, every time an interchangeable part is removed and replaced by a part of a different size, the part being removed should be thoroughly cleaned before being returned to its box. Similarly the cavity from which it was removed can also be cleaned prior to the assembly of the replacement part.

The machine should be returned to the General Machine Products (KT), LLC Trevose, Pa. after every 1000 hours use (or at intervals of 12 months) for a major service.

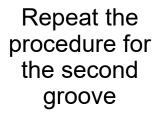
Procedure for replacing the air box housing seal

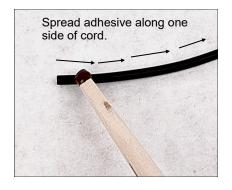


Cut a length of \emptyset 0.08inch sealing material 2 1/8" long (a little longer than is necessary).



Place the pre-cut length in the groove, glue surface down, starting at the end with the retainer plate and aligning flush with the end of the groove.

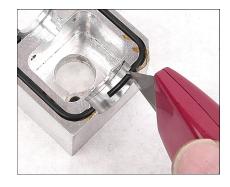




Apply a thin coat of 3M Rubber and Gasket Adhesive to the top of the cut sealing material



Work your way around, pressing the seal into the groove and allowing the excess material to hang over the opposite side.



Trim excess material flush with end of groove.



7. Monthly service - check list

This section includes a list of suggested checks, it is recommended that these checks be carried out on a regular basis, depending on use. Monthly checks are convenient; a few minutes can be set aside on the same day of each month to complete these simple checks. The next section of this manual is an empty table, the dates when these checks and all other service and repair jobs are completed can be entered into the spaces provided in this table. This will give the user a record of what service has been carried out and when.

- 1. Check the tool box, ensure all tools and interchangeable parts are present, clean and ready for use.
- 2. Clean the outside of the machine, take care not to damage the rollers.
- 3. Check the top idler roller and ensure it runs freely, and that the speed/distance functions respond when the wheel is rotated.
- 4. Check the condition of the bottom drive roller, replace accordingly.
- 5. Clean the exposed threads on the swing bolts that hold the air box and tube clamp assembly together. Add a smear of grease/oil* to prevent build up of surface corrosion and to insure smooth operation of the thumb nuts.



^{*}Care should be given not to expose the drive roller to any grease or oil.

8. SERVICE HISTORY RECORD

Service no	Date	Carried out by	Record of service/repair



9. Tube integrity and Lubrication

Tube integrity and lubrication are entirely the responsibility of the operator.

To be sure that the tube into which the cable is to be inserted is installed appropriately, it is recommended that its integrity and lubrication be checked.

Check that the tube is:

- 1. Not blocked
- 2. Not crushed
- 3. Continuous (no breaks)
- 4. Also check that any couplers are pressure tight
- 5. Finally check that the tube is appropriately lubricated

The easiest and most straightforward way to complete these checks is to set the machine up for a normal cable insertion but fit a seal in place of the cable. The tube can then be pressurized without running the roller drive.

CAUTION: Any object inadvertently left in the tube during the tube installation may be expelled from the end of the tube with high force and velocity. It is imperative that no personnel be in the vicinity of the end of the tube or that a suitable device is fitted to the end of the tube to arrest any expelled object.

The checks listed at 1-4 (inclusive) above may all be carried out at the same time using one check. The procedure is outlined below. Set up the air box and tube clamp as shown.

Fit the appropriate solid plug as shown



Fit the tube and tube seal in position as for normal cable installation.

When the air box has been set up as shown in the photo, the air box and tube clamp should be closed as for usual cable installation.



The air box and tube clamp are now set up to blow air through the tube.

- 1. Connect the air as for normal blowing.
- 2. Make sure there are personnel at the other end of the tube run, and that they are aware that the air is to be turned on.
- 3. Make sure that a suitable device is fitted to obviate injury should any object be expelled from the far end of the tube.
- 4. Apply air to the Gentle Air

The far end of the tube run should be monitored; air should be leaving the tube under reasonable pressure. The minimum pressure required will vary with the length of tube in the run, the friction characteristics of the tube, the cable and the lubrication being used. As a starting point, the air leaving the far end of the tube should be (at least) similar to a light breeze. Bear in mind that if the tube run is of considerable distance, it may take a few minutes for the air to reach the far end of the tube.

If after waiting a suitable time there is no air leaving the far end of the tube, this would indicate that there is a blockage or similar obstruction in the tube run, or, that the tube is fractured. In either case the fault should be corrected before any attempt is made to blow cable through the tube.

Once the tube integrity has been confirmed by the method outlined above. The tube may be lubricated.

- 1. Open the air box and tube clamp assembly, withdraw the tube and raise it so that the lubricant will pour into it easily and not overflow from the top.
- 2. Pour lubricant (available through GMP) of recommended quality and quantity down the tube.
- 3. Insert a suitable foam plug into the tube and put the tube back into the air box and tube clamp.

The air box and tube clamp assembly are now set up to blow the foam plug through the tube and deposit an even coating of lubricant to the inside walls of the tube.

- 1. Connect the air as for normal blowing.
- 2. Make sure there are personnel at the other end of the tube run, and that they are aware that the air is to be turned on. Make sure that a suitable device is fitted to obviate injury should any object be expelled from the far end of the tube.
- 3. Apply air to the Gentle Air

When the foam plug has been expelled from the far end of the tube run, cable can be installed into the tube.

Note: When the air is turned off, after checking the tube integrity and sending the foam plug down the tube to spread the lubricant, it may take some time for the pressure in the tube to fall back to low levels.



10. Recommended spares list

- 1. Tube Seals See appendix 1
- 2. Cable Seals- See appendix 1
- 3. Drive Roller 36573
- 4. Lubricant 89568 (Polywater, 6 bottles per case)
- 5. Seal Cord 89691
- 6. 9V Lithium Batteries 30069 (pair)
- 7. Replacement Top Roller Kit 36592 note: 36592 is for unit with pickup wheel only. Call the factory if you have an encoder model.



GMP Gentle Air Tool Kit



For spare parts always quote the machine type and serial number and contact: General Machine Products (KT), LLC

3111 Old Lincoln Highway, Trevose PA 19053 USA
TEL: +1 215 357 5500 FAX: +1 215 357 6216 Website: www.GMPtools.com





APPENDIX 1

This section lists the appropriate inserts, collets, etc required for a given cable/tube combination.

GMP GENTLE AIR Configuration

In order to customize your new "Gentle Air" to your application, we ask that you pick, one each from the lists below, the Tube Collet Assembly P/N and the Cable Seal Collet Assembly P/N. When ordering, please have Tube and Cable dimensions available.





TUBE COLLET AND CLAMP ASSEMBLIES

89918 4mm O.D. 89919 5mm O.D. 89926 7mm O.D.

SPARE TUBE SEAL O RING (5 Pack)

89556 4mm 89549 5mm 89553 7mm







Spare Plastic Seals - Sold in Pk of 5 89509, 89510

CABLE SEAL COLLET ASSEMBLY

89898 2.0 - 2.5mm 89899 2.5 - 3.0mm

SPARE CABLE SEAL

89509 2.0 - 2.5mm 89510 2.5 - 3.0mm







Spare Solid Seals - Sold individually 33087, 33043, 33425

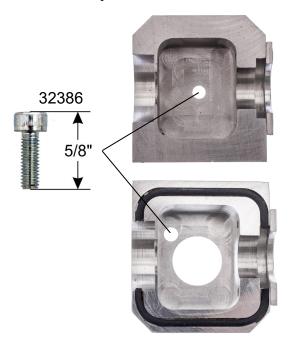
89929 1.0 - 2.0mm

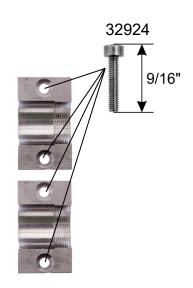
33087 1.1mm ø 33043 1.6mm ø 33425 2.0mm ø

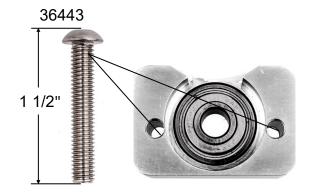


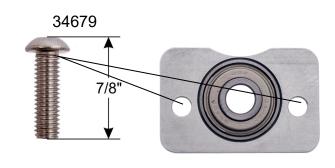
GMP Gentle Air Configuration

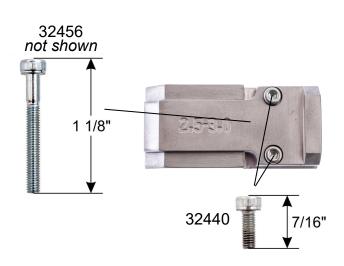
Replacement Hardware

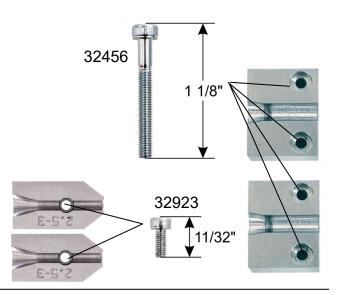












APPENDIX 2

Determining the correct clutch torque setting

Select a sample of the cable to be used. Pass the cable through the machine as described in the manual. Feed the cable into the beginning of a length of sample tube (say 15' long). Seal the open end of the tube.

Set the clutch to its lowest value. Drive the cable hard into the sealed end of the sample length of tube. The roller will stop turning, this is because the torque limit has been reached. Repeat this procedure, each time turning the clutch up by one position. Eventually, the cable will buckle. The setting of the torque is now a little too far. Turn it back 1 position. This is the optimum setting.



The clutch is adjusted by a simple thumbwheel located in front of the drive shaft. To increase tension, slowly rotate the wheel to the right.

It is best to set the tension after the Gentle Air has acclimated to the temperature in which it will be used.

APPENDIX 3 Press and hold both < and buttons. o After 5 seconds 'ProG' will be displayed. Releasing the buttons will display 'no' Press o 'Yes' is displayed Hold ◀ and press o 'InPol' is displayed Press until 'nPn' is displayed o 'Filter' is displayed Press until 'oFF' is displayed o 'InPut' is displayed Press until 'Cnt.dir' is displayed Hold ◀ and press o 'FAc.Cnt' is displayed Press • Enter value 00.0116 for meters, 00.0380 for feet o Use < to move to next digit o Use to increment digit (this instruction applies to all following number inputs) Hold ◀ and press ▶ o 'diV.Cnt' is displayed Press < • Enter value 01.0000 Hold < and press o 'dP.Cnt' is displayed Press > until '0' is displayed Hold < and press o 'rES.Cnt' is displayed Press ➤ until 'MAnrE' is displayed Hold < and press o 'FAc.tAc' is displayed Press < • Enter value 00.0116 for meters, 00.0380 for feet o 'diV.tAc' is displayed Press < Enter value 01.0000 Hold < and press o 'dP.tAc' is displayed Press > until '0' is displayed Hold and press o 'disPm' is displayed Press > until 'Min-1' is displayed

(over)

Hold

 and press

 o 'Wait0' is displayed

- Press ◀
- Enter value 01.0
- Hold ◀and press ►
 - o 'EndPro' is displayed
- Press ▶ until 'YES' is displayed
- Hold ◀and press ►
 - o Programming completed

OR

- Press ▶ until 'no' is displayed
- Hold ◀ and press
 - o Programming mode restarted

Gentle Air Optional Accessories

Bottled Nitrogen Kit P/N 89742 Weight: 4.5 lbs. (2 kgs)



Whisper Air Hose P/N 89949 Weight: 2 lbs. (.9 kgs)



Mounting Plate P/N 89947 Weight: 1 lbs. (.45 kgs)



Whisper Tripod Mounting Kit

- Lightweight and durable
- Positive locking clamps
- Made of space-age aluminum alloy
- Flat Head design
- Easy Setup
- Built in shoulder strap
- Folds for storage
- Max work height 63" (160 cm)

P/N 89945 Weight: 9 lbs. (4.1 kgs)



Drill Stand





Air Compressor

The Air Compressor is designed specifically for use with our Micro Fiber Cable Blowing Machines. This reliable & efficient screw compressor, powered by a gasoline engine, provides a maximum working pressure of 220 psi (15 bar) with 35.3cfm (1000 litres/m) flow.

Engine: Honda 21 hp Fuel Cap.: 5 gal (20 liters) Length: 42" (1070 mm) Width: 31" (800 mm) Height: 30" (780 mm) Weight: 487 lbs. (221 kg)

P/N 89011 Weight: 487 lbs. (221 kgs)







