

DECEMBER 2013

HoverTrowel, Inc.

HoverTrowel[®]
HoverTrowel[®]



HoverTrowel...

*...the most versatile power trowel on the market,
with features designed specifically to finish polymer toppings*

*HoverTrowel Inc., 5048 Spruce Lane, Mohnton, PA 19540 (610) 856-1961 Fax (610) 856-1920
www.hovertrowel.com*

Table of Contents



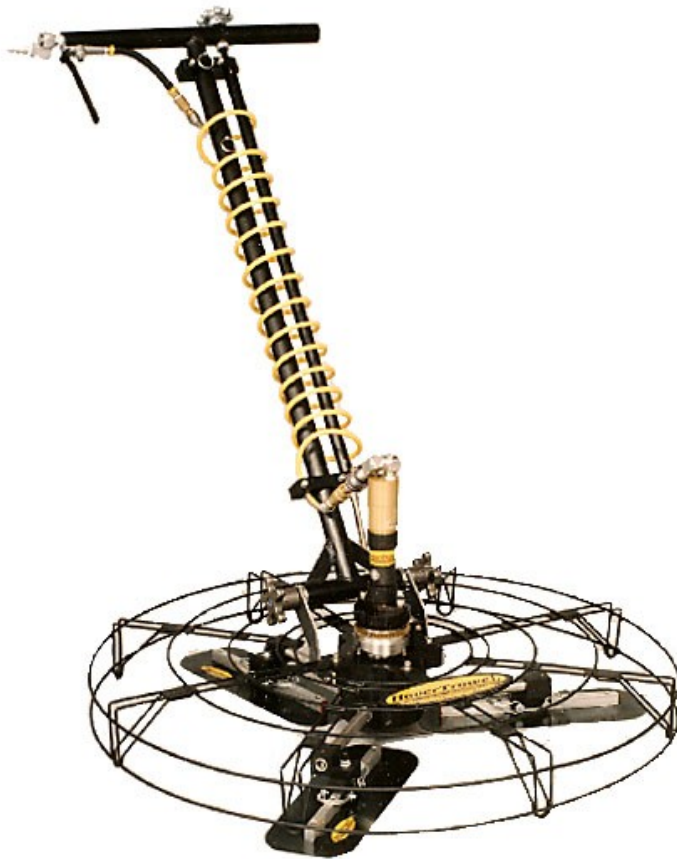
PAGE 1

Introduction	Page 2
Specifications	Page 3
Spare Parts Drawing HT-004	Page 4
Exploded Assembly Drawing HT-005	Page 5
Initial Assembly Drawing HT-006	Page 6
General Assembly	Page 7
Motor Mounting	Page 8-9
4 Cycle Option	Page 10
Handle Assembly & Attachment	Page 11-12
Blade Attachment & Selection	Page 13-14
Air Supply	Page 15-16
Weight Stud Attachment	Page 16
Operating Procedures	Page 17-19
Summary	Page 20

Important: This manual should be read in its entirety before operating this equipment. It contains information about your *HoverTrowel* and its safe operation. Also, everyone operating the trowel should become familiar with the controls and their proper use before operating this machine. Never operate without the guard. Safety glasses and earplugs are recommended as safe practice during operation.

The **HoverTrowel** is a pneumatic or gas driven power trowel specifically designed to finish trowel epoxy and other polymer toppings. It's lightweight allows it to do many operations previously on done by hand. The trowel has had years of rigorous field-testing. Whether hand troweling or power troweling with industrial systems or decorative quartz, experienced or not, the **HoverTrowel** will produce a smoother, flatter, more consistent finish insuring customer satisfaction.

The combo style high carbon tool steel, stainless steel and polymer blades are fastened with snap rings for quick release and easy cleaning. The fingertip pitch control knob adjusts the angle of the blades, while weights can be added to accommodate various blend ratios, resin viscosities, ambient conditions and air pressures.



The telescoping handle not only adjusts easily in length and height for operator preference, but also totally disconnects from the unit with a twist of two knobs, allowing easy transportation and storage. The quick disconnect and swivel on the handle grip reduces any twisting of the airline. Some operators leave the handle slightly loose during the finishing certain systems so the **HoverTrowel** literally glides over the surface.

All aluminum parts have been black anodized and the carbon steel parts, including the guard and handle are powder coated for durability and solvent resistance. Internals are mainly corrosion resistant, long wearing stainless steel.

U.S. Patent Number.....	5,205,669
Dead Weight.....	35 lbs.
Weight Kit.	22 lbs.
Guard Diameters.....	25" & 34"
Overall Blade Diameters.....	24" & 33"
Blade Sizes.....	5" x 9.5" & 5" x 14"
Blade Pitch Control (In Degrees).....	0 - 10

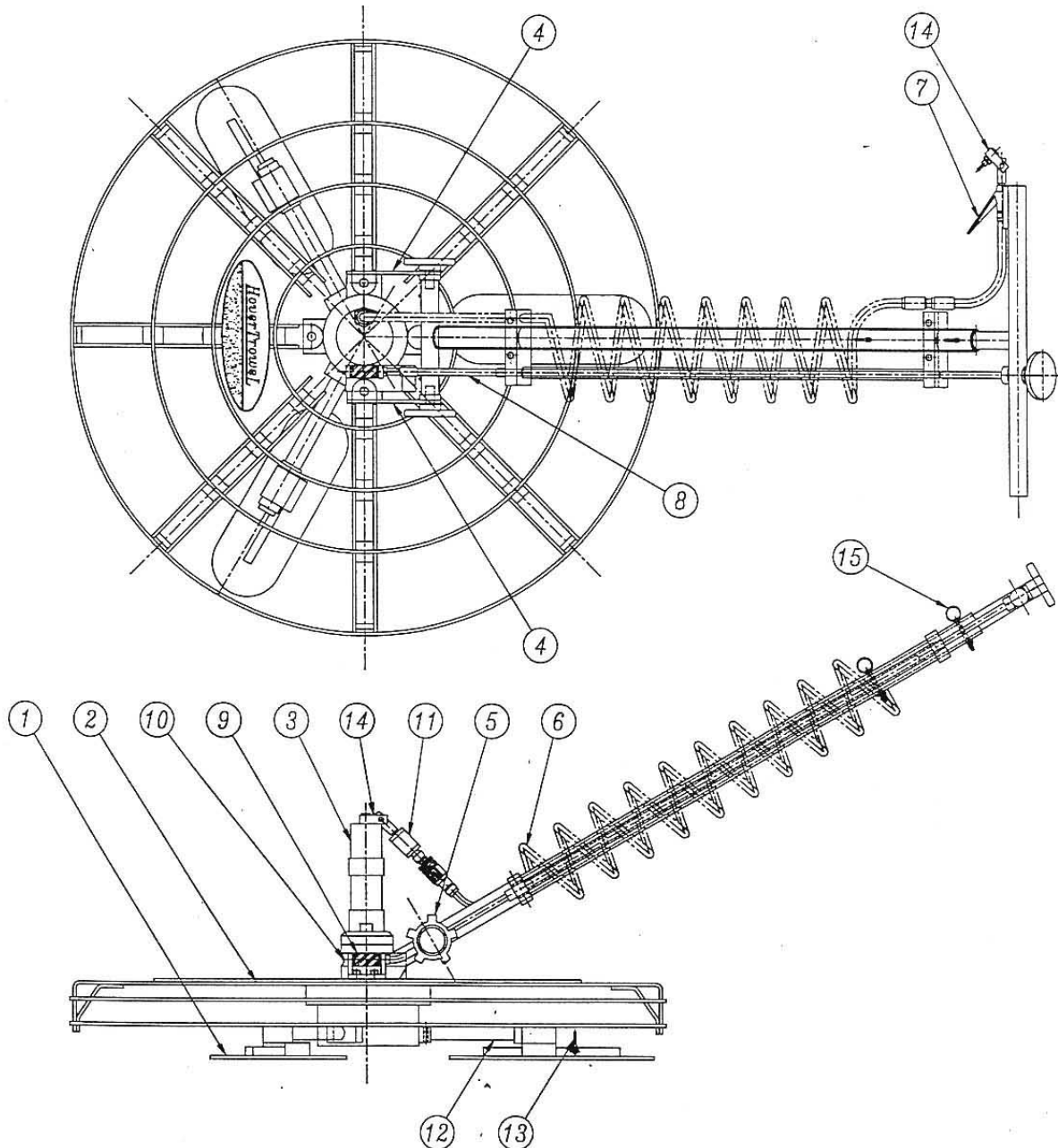


Pneumatic Motors:

I-R MOO4 Series	Maximum Power.....	hp .41
	Air Consumption @ Max Power.....	18.5 cfm
	Model 050 Speed @ Max Power.....	175 rpm
	Model 050 Stall Torque.....	22 lb.-ft.
	Model 167 Speed @ Max Power.....	53 rpm
I-R MOO7 Series	Model 167 Stall Torque.....	78 lb.-ft.
	Maximum Power.....	hp .76
	Air Consumption @ Max Power.....	36 cfm
	Model 188 Speed @ Max Power.....	52 rpm
Atlas Copco Series	Model 188 Stall Torque.....	128 lb.-ft.
	Maximum Power.....	hp 1.09
	Air Consumption @ Max Power.....	35 cfm
	Model LZB46 Speed @ Max Power.....	65 rpm
	Model LZB46 Stall Torque.....	185 lb.-ft.

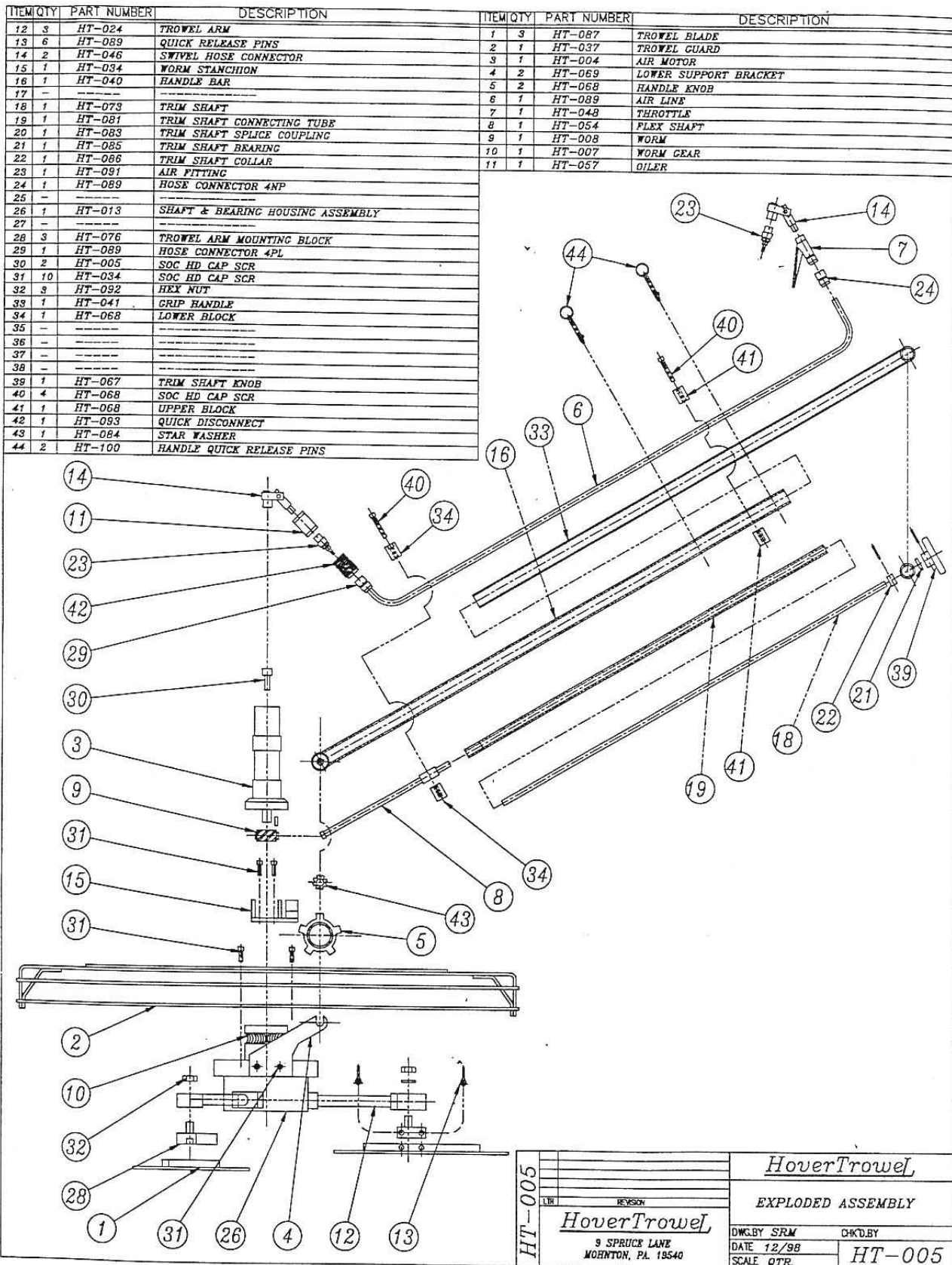
Spare Parts Drawing

ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION
8	1	HT-054	FLEX SHAFT	1	3	HT-087	TROWEL BLADE
9	1	HT-008	WORM	2	1	HT-037	TROWEL GUARD
10	1	HT-007	WORM GEAR	3	1	HT-004	AIR MOTOR
11	1	HT-057	OILER	4	2	HT-069	LOWER SUPPORT BRACKET
12	3	HT-024	TROWEL ARM	5	2	HT-068	HANDLE KNOB
13	6	HT-089	TROWEL BLADE QUICK RELEASE PIN	6	1	HT-089	AIR LINE
14	2	HT-046	SWIVEL HOSE CONNECTOR	7	1	HT-048	THROTTLE
15	2	HT-100	HANDLE QUICK RELEASE PIN				



HT-004	REVISION		HoverTrowel	
	DATE, 12/98		SCALE QTR.	
	DWG. BY SRM		CHKD. BY	
	9 SPRUCE LANE MOHNTON, PA. 19540		HT-004	

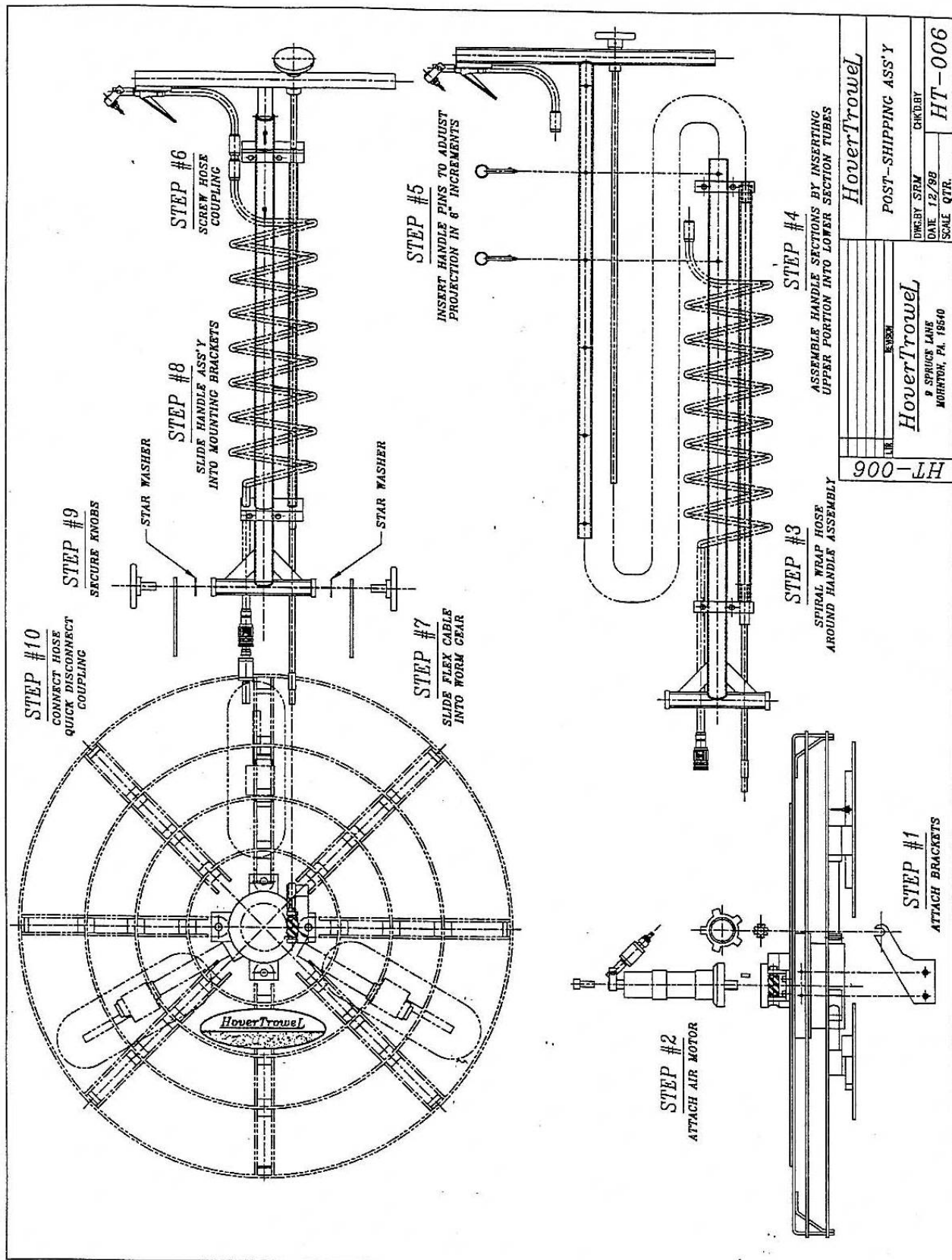
Exploded Assembly Drawing



Initial Assembly Drawing

HoverTrowel®

PAGE 6



General Assembly Information

It is highly unlikely any damage would occur to your **HoverTrowel** without damage to the box. Any damage in transportation should be reported to the **HoverTrowel** office immediately and the shipping container should be kept for freight claims. Ideally the shipment should be rejected.

Remove all shipping ties and materials. Remove all components carefully. Lay out all components. Components and accessories will vary depending on the **HoverTrowel** model or kit purchased. If included, remove weights from their studs (if applicable) before the handle pad.

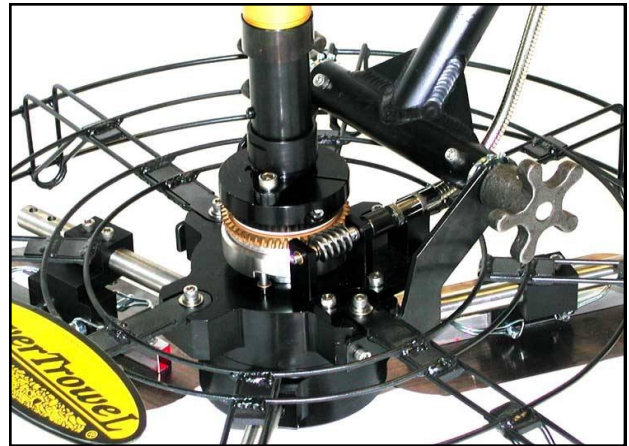
The trowel has been manufactured to very strict tolerances and a high degree of precision. To achieve the desired weight range while not sacrificing durability, aluminum components with stainless steel hardware are used. Fasteners should be aligned properly and not forced or stripping could occur. (Refer to the drawing on the following page.) Should stripping occur, carefully use a 1/4" 20 thread tap to restore the stripped threads.

Never disassemble the main housing. This housing consists of the rotating and non-rotating heads. If any problems determined to be internal components or its operation, the assembled housing should be returned to the manufacturer. Any disassembly of this housing will void all warranties, resulting in repair costs.

Main Housing:

Step #1: Remove and lay out all components. Components and accessories will vary depending on the **HoverTrowel** model or kit purchased. The guard will be secured to the non-rotating head assembly.

Note: If both size guards (2) are included, the 25" guard would be secured to the main housing for shipping. Replace with the 34" guard if desired, simply remove the four hex head screws and replace.



Step #2: The two lower support brackets (4) (supplied separately) should be secured (with four hex head screws) to the non-rotating head of the bearing housing assembly (26). Align the brackets so the handle slots are on the opposite side of the motor mount from the **HoverTrowel Logo** on the guard (2). Tighten all four fasteners.

Step #3: When assembling any motor (3), always make sure the motor mount is pressed as tight as possible on the center shaft of the bearing assembly. Older models had a Teflon washer in-between, newer this washer has been eliminated. WD 40 should be sprayed on both mating surfaces prior to assembly. **Do not force!** Once the motor mount is securely flush to the Teflon washer, tighten the hex head screw on the side of the mount. If this is loose or not flush, there will be minimal or no pitch of the blades.

Motor Mounting

I-R MOO4 Series Motor Mounting:

Step #1: Remove the MOO4 motor and accessories from the box. Keep all the motor manufacturer's paperwork for future reference.

Step #2: If not done already, screw in muffler to the larger threaded port on the top of the motor. Install the oiler (11) in the same fashion to the smaller port. When using the larger muffler, an brass elbow fitting is required. This must be done **without** the oiler installed. A male airline plug (23) should be secured in the top of the oiler.

Note: The swivel (14) between the oiler and the motor was eliminated for better flow.

Step #3: Insert keyway into the slot in the motor's (3) shaft and slide into the slot provided in the motor mount. Depending on model the motor mount hex screws are in the motor box or the bag with the handle hardware. Secure the motor to the motor mount with the two screws. Do not force these screws or stripping may occur.

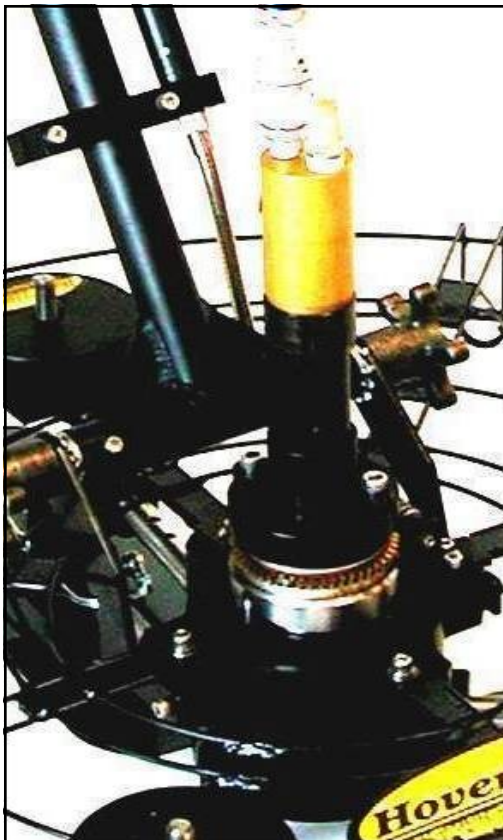
Step #4: Turn pitch control knob (39) so the three pins on the main housing are at the highest point. While applying a downward pressure to the motor (3), tighten the mounting screw on the side of the motor mount. This screw is parallel to the floor. This screw must be secure to supply the back- pressure required for the pitch to work properly. If the motor mount is not flush against the "C" ring, the pitch will be reduced.



I-R MOO4



**Shaft Adapter
& Motor Mount**



Models without the "C" ring require the Nylon washer.

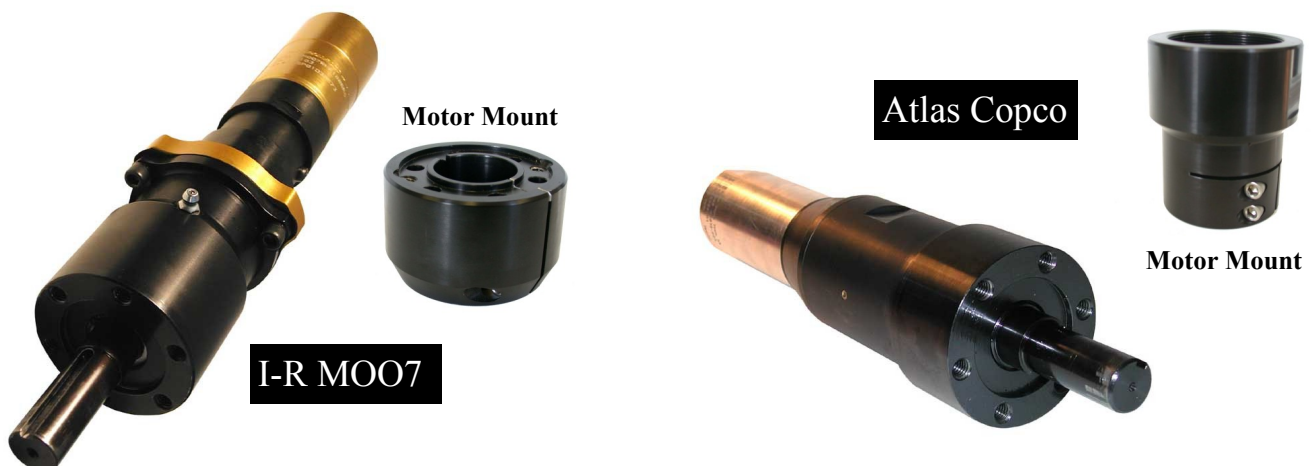
Step #5: Secure the female quick disconnect (42) on the lower end of the yellow coil air hose to the male plug on the top of the motor.

Step #6: Fill the oiler (11) by removing the small screw at the top of the globe. An eyedropper or small syringe is very helpful. Always make sure the oiler is filled and grease the fitting on the motor periodically per manufacturer's instructions.

Important Note: Clean dry air supply is recommended to keep the motor running at peak performance. An air filter **MUST** be used to remove damaging dirt and moisture.

Ingersoll-Rand MOO7 Series & Atlas Copco LZB Series

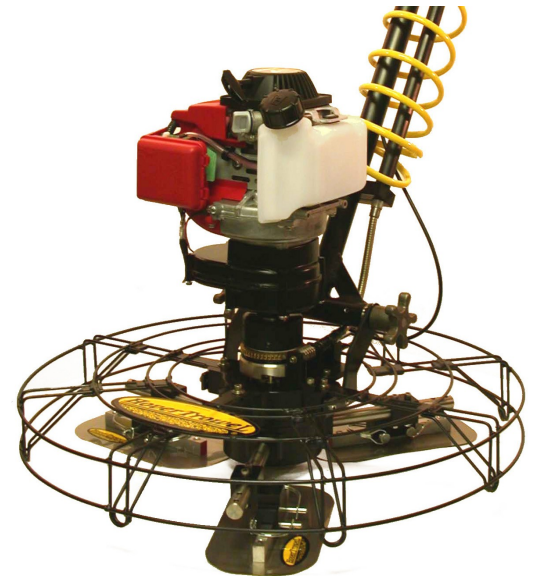
- Step #1:** Remove the motor (3) and accessories from the box. Keep all motor manufacturer's paperwork for future reference.
- Step #2:** If not done already, screw in muffler to the larger threaded port on the top of the motor. Install the oiler (11) in the same fashion to the smaller port. When using the larger muffler, a brass elbow fitting is required. This must be done **without** the oiler installed. A male airline plug should be secured in the top of the oiler.
- Note:** The swivel (14) between the oiler and the motor was eliminated.
- Step #3:** The MOO7 Series motor has a six-hole mounting configuration and mounted somewhat differently. The Atlas Copco motor has a six-hole mounting configuration as well as a two-hole flange mounting. The motor mount normally comes attached to the motor housing with stainless steel hex head screws. There is a two key set-up on this assembly. One key is secured in the black anodized aluminum mount and the other is the loose key to the shaft of the motor. The loose key on the shaft of this motor is sometimes very tight. If the aligned motor can be slid flush with "C" ring, (or the white Teflon washer on older models) without the key, but not with the key inserted, a light filing will help the motor slide onto *HoverTrowel's* non-rotating head.
- Important Note:** **DO NOT force the motor. A lubricant like WD 40 should always be sprayed on the mating surfaces prior to sliding the mount onto the unit.**
- Step #4:** Turn pitch control knob (39) so the pins are at the highest point. While applying a downward pressure to the motor, tighten the mounting screw on the side of the motor mount. This screw is parallel to the floor. This screw must be secure to supply the backpressure required for the pitch to work properly. If the motor mount is not flush against the Teflon washer, the pitch will be reduced.
- Step #5:** Secure the female coupler on the end of the yellow coil air hose to the male plug on the top of the motor.
- Step #6:** Fill the oiler (11) by removing the small screw at the top of the globe. An eyedropper or small syringe is very helpful. Always make sure the oiler is filled and grease the motor periodically per manufacturer's instructions.
- Important Note:** A clean dry air supply is recommended to keep the motor running at peak performance. An air filter **MUST** be used to remove damaging moisture and dirt.



4 Cycle Option:

The **HoverTrowel** can be set-up with or modified to use a 4 stroke engine as its power-plant instead of the more common pneumatic motors. This is ideal for outside installations and with its low emission can be used in non-sensitive and/or well ventilated areas inside.

A similar mounting collar allows the **HoverTrowel** to be modified with this 31cc engine. The Honda model shown here is extremely quiet with low emissions. The engine comes with a transmission reducing the rpms. The small gas model weighs roughly 44 lbs without any weights, although it is power enough for these weights to be used if needed.



Do Not Over Oil the Motor!

If the motor is ever over oiled, drain, refill the correct amount (5-6 oz) and run the motor. It will smoke until the excess motor is burnt off.

Step #1: The engine, transmission and mount are fully assembled prior to shipping. Keep all motor manufacturer's paperwork for future reference on engine performance.

Step #2: Make sure the teflon washer is seated on the top of the unit for older models. No washer or spacer is needed for the new models. Lubricate (WD 40) the inside of the mounting collar, align the ID keys on the collar with the OD slot in the non-rotating head, while also aligning the shaft key with the ID slot in the non-rotating head. **Do not force.**



Step #3: Attach handle and make sure the pitch pins are at peak height.

Step #4: Turn pitch control knob (39) so the pins are at the highest point. While applying a downward pressure to the motor, tighten the mounting screw on the side of the motor mount. This screw is parallel to the floor. This screw must be secure to supply the backpressure required for the pitch to work properly. If the motor mount is not flush against the "C" ring, the pitch will be reduced.



Step #5: Plug in the ignition pin. Attach the ground wire with the screw on the front of the engine. Slide the throttle lever cable into the slot as shown in the manufacturer's Owner's Manual.

Retrofitting: Disconnect the ignition and ground wires and remove the throttle cable. Remove the two screws holding the ignition harness in place and slide the harness from the handle. Slide the pneumatic throttle into handle and secure the screws. Wrap coil hose around the handle. Use quick disconnect to male plug on the oiler about the pneumatic motor. Reverse the sequence to retrofit from pneumatic to gas.



Pneumatic Handle

- Step #1:** Remove all components attached to the handle pad.
- Step #2:** Slide the top of the “T” handle into the lower section, aligning the main handle tube and the pitch control extension into their corresponding holes in the lower section. It may be necessary to turn the pitch control knob (39) or tap the two together to seat the pitch extension into the bottom insert.
- Step #3:** Align holes at desired length and insert hitch pins.
- Step #4:** Thread and screw the coil hose to the rubber hose section attached to the throttle assembly.
- Step #5:** Screw in the handle knobs (5) with star washers (43) into the holes at the bottom of the handle. This star washer will be on the inside when resting the handle into the cradle slots of lower handle brackets (4).



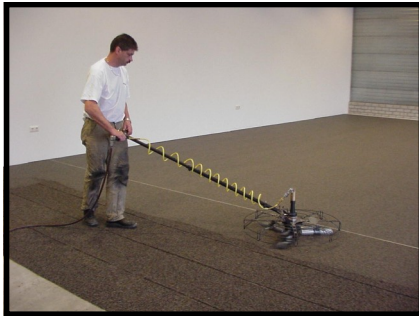
To connect the handle to the unit, hold handle assembly horizontally and level with worm gear drive (9). Make sure flex shaft (8) is located on the underside of handle assembly bar. Air connection should be located on topside of handle assembly bar. While moving handle assembly towards the main unit of the *HoverTrowel*, insert pitch control flex shaft (8) socket end into worm gear socket drive (9). Slowly turning pitch control knob (39) will help align worm gear socket drive with flex shaft socket head. The flex shaft assembly must be properly connected to worm gear drive to assure proper pitch control. The flex shaft (8) will seat itself into shaft slot on worm support (15), eliminating any need for nuts and bolts. The proper distance of the bottom of the lower block (34) should be approximately 7" from the end of the handle assembly. This will assure the proper tension on the flex shaft. If needed, adjust the upper block (41) accordingly to assure smooth operation of the pitch control.

Helpful Hint: If turning the pitch control knob does not change the address of the blades, either the flex shaft is not seated properly on the worm gear socket or the motor mount screw has loosened. In which case, with the pitch pin at its highest, push the motor down and tighten motor mount screw.

With the handle assembly still in a horizontal position and the worm gear connected properly to the flex shaft, lift handle assembly level with the top of the handle brackets (4). Move the handle assembly towards the *HoverTrowel* housing (26), and slide handle adjustment bar down into handle support (4)



slots. The star washers (43) must be inside the brackets. Star washers improperly placed between the adjustment knobs (5) and the handle mounts will not provide proper resistance to maintain your desired handle position. **Tighten adjusting knobs (5) with a 5/8" closed ended wrench is the best method.** Mate and couple the airline connections. The inline air swivel coming off the motor should be adjusted so the airline doesn't crimp. The two hitch pins (15) located at the tip of the handle will allow the handle's length to be increased or decreased at 6" increments. Return these pins (15) prior to operation. The handle should always be disconnected from the main



assembly when transporting the *HoverTrowel*. Removing the handle assembly will ease transporting and reduce the risk of useless damage. Disconnect handle airline from air motor assembly. Loosen handle adjustment knobs (5) enough to allow for removal from handle bracket (5) slots. Leave the adjustment knobs on the handle.

Lift handle assembly up and out of the *HoverTrowel's* handle bracket slots. Pulling handle assembly away from the *HoverTrowel* housing (26),

this motion will disconnect the flex shaft (8) from the worm gear drive assembly (9).



4 Cycle Handle

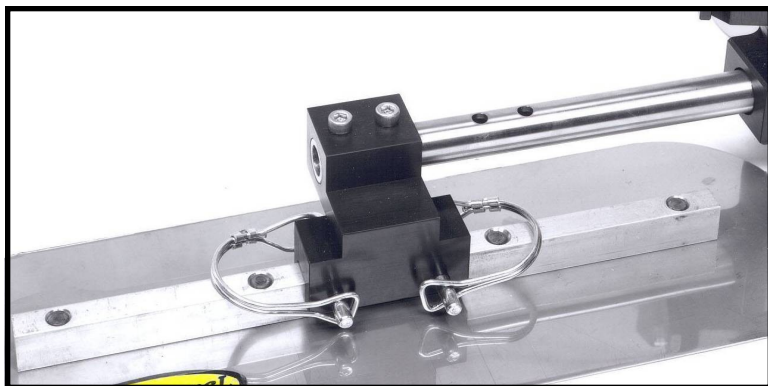
The handle for the 4 cycle HoverTrowel varies from the pneumatic model by having a throttle cable and ignition harness instead of the air coil and trigger assembly. For greater protection during length changes the wires for the ignition switch are fed through a nylon coil. The one wire connects to the ignition by a bullet connector, while the ground attaches to the screw on the front housing of the engine. The throttle end of the harness is fed through a rubber grommet located on the back top "T" of the on the handle. The throttle and ignition mount can be removed and disconnected from the harness by bullet connectors. Since there is a simple switch the wires are interchangeable.



The throttle cable should be fed through the center of the coil harness. This cable is designed to allow the handle to telescope. The inner cable on the throttle end should be fished through the lever assembly so the bead is secure in its slot. To attach the engine end of the throttle cable, remove the air filter on the engine and slip the barrel end of the inner cable through the appropriate slot. Secure the threaded end of the cable so the inner cable is seated properly.

The handle attaches to the HoverTrowel's main housing in the same manner as the pneumatic handle. Making sure the star washers are on the inside of the brackets. Tighten the knobs with a 5/8" closed ended wrench. Never use a steel hammer. The knobs are cast and can break off by hitting them with a metal hammer. The handle can be increased or decreased by removing the two hitch pins.

To retro fit from air to gas, remove the two set screws securing the air trigger assembly and slide it from the handle. Feed the ignition wires through handle, mate bullet connectors and slide throttle assembly into the handle and insert end cap. Connect low end as instructed above.



The trowel arm mounting blocks (28) are attached to the trowel arm with two screws per block. These blocks should remain on the trowel arm at all times, other than for ease of cleaning. They should always follow the trowel arm in its clockwise rotating direction. The orientation of the

blades' stiffener bar is parallel with the trowel arm (12). The bar trails the arm during rotation. Manually check spring tension of the pitch at this time to assure the blade blocks are in the correct position. There are two position settings for the mounting the blocks. The extreme setting will accommodate the 14" blade and 34" diameter guard while the inner setting is for the 9 1/2" blades and the smaller 25" diameter guard. These blades and guard will allow the **HoverTrowel** to be operated in tighter confines and through smaller doorways. The surface area of these smaller blades also reduces the torque load required.

Attach trowel blades (1) by aligning the holes of the blade shank with the mounting block and connect using the clip pins (13). The trowel blades (1) must be kept clean and edges smooth. Dirty trowel blades and rough edges will have a detrimental impact on a desirable floor finish. A spare set of blades can be rotated on the trowel during the mortar installation, keeping an extra set always clean. Using a spray lubricant or trowel-ease type product supplied or suggested by the resin manufacturer will also aid in keeping the blades clean during operation. The trowel blades (1) and clip pins (13) should be removed from trowel blade and cleaned thoroughly with solvent at the end of each troweling session or at the end of the days work.

Helpful Hints:

- * **Steel blades can become extremely sharp as they become broken in. Care should be taken when cleaning and removing the steel blades. This doesn't apply to blades and floats made of other materials**
- Be sure blade blocks (28) are always aligned so the shank of the blade is parallel to and behind the trowel arm (12). If installed in reverse, the pitch will not work and in turn, the trowel will not perform correctly.
- Always use the blades in sets, so the wear is consistent.





If the trowel blades, blocks and pins are not properly cleaned, trowel performance will be less than desirable. Cleaning these items properly, periodically and at the end of each workday should be done with clean solvent to remove as much aggregate and resin as possible. Following the solvent cleaning with warm soapy water removes any resin film from trowel assembly surfaces that might harden and limit the trowel's performance.

The **HoverTrowel** should always have trowel blades connected to trowel arms when transporting. Leaving the blades connected will prevent possible damage to the blade block (28) and trowel arms. Always secure the trowel while transporting.

HoverTrowel's standard blades are made of high carbon tool steel. These blades can be used on all industrial and decorative polymer floor toppings. Its high wear characteristics and the trowels weight don't produce the burnishing associated with power troweling. Stainless steel blades are available for various types of aggregated, while the polymer blades will totally eliminate burnishing from over troweling. The life of the polymer blades is not as long as the steel blades and should be monitored for wear. Running the polymer blades on a dry or rough substrate will cause premature wear. These blades should only be used for decorative systems and primarily ones that use a clear resin with a colored aggregate.





The various multi-vane air motors used to power the *HoverTrowel* provide quality, dependability and varying torque loads, while requiring relatively low cfm. Clean, dry, well-lubricated compressed air is essential to prevent excessive wear to the air motor and to assure the smooth operation of the *HoverTrowel*. An in-line air filter **MUST** be used to assure clean dry air to the unit. The compressed air temperature and speed at which it travels through the hose produces moisture to corrode the internals of the motor greatly reducing its power and eventually causing the gears to seize. A filter will trap dirt and eliminated foreign particle damage. This filter should be close (~50') to the *HoverTrowel* to reduce as much moisture as much as possible. A typical stand along model shown here also has a pressure regulator and acts as a hose reducer when needed.

The air supply should be maintained between 90 - 100 psi while producing 18 - 36 cfm (depending on motor) for optimum performance. This flow rate is typically available on the job site or can be provided by a portable compressor. The flow rate (cfm) of the air is more important than the pressure (psi). A compressor can produce 100 psi without supplying near 18 cfm. So check all specifications carefully. When using shop air, always check the air pressure at the point of the installation prior to mobilization. The facility's compressor may have a lot of equipment draining its supply or may be far away from the area of installation. The greater the airflow, the more efficiently the *HoverTrowel* operates and in turn, the easier the installation.

Mufflers are used to reduce the noise levels, although they do restrict exhaust causing reduced incoming airflow. The higher the cfm being supplied the more restrictive a muffler can be without sacrificing the motor's horsepower resulting torque loads. If your air supply is low and the trowel is "bogging down," removing the muffler can produce slightly more power. A muffler should always be used in small rooms and ear protection is recommended.

Helpful Hints:

- Misting a lubricant, such as mineral spirits, on the fresh mortar will aid in troweling with an inadequate airflow. This also cleans the blades easily. The material manufacturer will suggest the right lubricant for their system.
- Lightly seeding the fresh mortars surface with a fine aggregate will also help when finishing a very resin rich system or when the air supply is less than ideal.



The *HoverTrowel* will operate at pressures below the recommended psi and cfm, but the performance will not be as consistent at the lower pressures. A surging air supply will also produce inconsistent operation. Because of hose length, possible restrictions and friction losses in the air system, a pressure reading at the compressor does not mean that the same pressure will be available at the *HoverTrowel*. A needle air pressure gauge can be used to determine incoming air pressure between the *HoverTrowel*'s throttle and the motor on the rubber portion of the airline. To ensure constant satisfaction, it is a good policy to check in-house air pressures prior to mobilization.

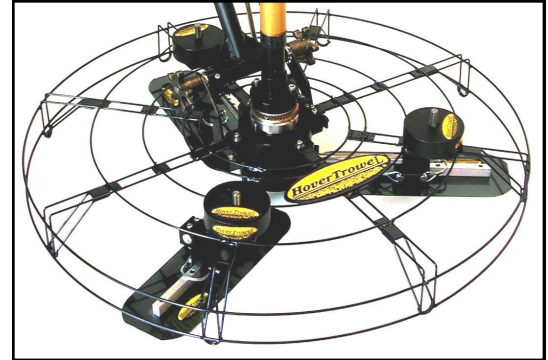
An adequate, abundant air supply is a cheap way to assure repetitive quality.

An in-line oiler (11) is installed above the motor and **MUST** be checked and filled periodically with the appropriate air tool lubricant oil ("number 10") or equivalent. To fill auto oiler easily, make sure auto oiler filler screw is facing up, remove the screw, fill oiler bulb with roughly 1/4 oz. of the pneumatic oil and replace the filler screw. A small plastic syringe (found at any pharmacy) or eyedropper is very helpful. The motor manufacturer's maintenance recommendations in their manual should be followed to maximize the life of the motor. This includes maintaining a constant oil supply and greasing a minimum of every thirty to forty hours of operation.



The motor manufacturer's Operation and Maintenance Manual should be adhered to and kept for reference. A list of repair centers is also enclosed. A motor that has been run without oil, an in-line filter or exhibits any problems should be taken to an approved repair center for evaluation and service. It also may be shipped back to **HoverTrowel Inc.**

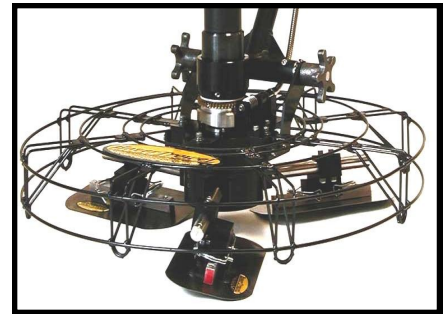
Weight Set Stud Attachment



- Step #1:** The three threaded studs should be configured between the two stiffener wires in the middle ring of the guard. Two of these will be on either side of the **HoverTrowel Logo Plate**. The third should be placed at the same position directly under the handle, three stiffeners from either front placement.
- Step #2:** The plate should be threaded down the stud and rest on top of the wire guard. From underneath, slide the large flat washer up the stud. Followed by the lock washer and the wing nut. Tightly secure and check periodically as they may loosen in time.
Important: Before operating, be sure the stud or wing nut clears the trowel arm before operating. Simply turn the guard back and forth to assure clearance on all three studs.
- Step #3:** The weight kit consists of three discs weighing 5 lbs. and three discs weighing 2 ½ lbs. These weights can increase the overall weight of the trowel roughly 22 lbs. at 2 ½ lb increments.

Note: Be sure to distribute the weight evenly on the three studs.

Read the manual in its entirety before operation. To begin troweling, open trowel blade pitch so the leading edge of the blades are approximately 1/4" off the substrate. Too much pitch will scrape material off floor. Too little (or flat) pitch could throw material. During operation, trowel blades run with too little pitch will also wear the center of blades excessively, greatly reducing trowel blade life. As mentioned before, the trowel blades are reversible. Reversing the leading edge of the blades periodically will further extend the serviceable life of the blade. Use the **HoverTrowel** decal as a guide to keep the blades sets uniform. Always keep blades in sets, so wear patterns and curvatures of the blades are consistent.



Set the handle at the desired length and height. Tighten the handle knobs with a rawhide or rubber mallet. Using a steel hammer could result in breaking of a wing of the cast material of the knob. Connect the incoming airline to **HoverTrowel's** handle mounted trigger assembly. This airline **MUST** have an in-line filter to eliminate moisture and dirt from damaging the motor.



While holding the **HoverTrowel's** handle with both hands, engage air throttle with your right hand. As a safety feature the throttle acts as a dead mans switch. The unit will automatically stop when throttle is released for any reason.

Important Note: Never replace the throttle lever with a ball valve. This could cause very serious injury or damage if the operators hands slips off during operation. This assembly is the built-in dead man's switch for safety purposes.

The **HoverTrowel** should be running at a slightly higher RPM when moving from the primed substrate to the fresh mortar. The speed can be reduced during troweling. The actual troweling speed will vary depending on operator preference, the resin viscosities, sands to liquids ratios and ambient temperatures. **DO NOT** let the trowel stand or stop on fresh mortar, as extreme torque loads will be created when starting its initial revolution. This could result in damage to the motor.

Controlling the direction of the **HoverTrowel** is very simple. A light downward pressure on the handle and the **HoverTrowel** will travel to the right. A light upward pressure on the handle and the unit will travel to the left, while holding the handle in a neutral position, the **HoverTrowel** will remain in one spot. To fill a void or cut down a high spot, allow the trowel to move back and forth over imperfection, tossing a small amount of mortar on a void. Increase pitch if necessary to help move material. It should be noted, the **HoverTrowel** is designed to finish trowel the mortar, not move it. Placement of a good consistent bed of mortar is very important. Where feasible, a screed box is highly recommended, while a gauge rake should be used in more confined spaces.



Always leave about four to six inches (4" to 6") of fresh mortar untroweled. Troweling the entire bed of mortar and not leaving this “fresh edge” before applying the next pass will produce noticeable lap marks in the finished floor. It is very important not to have an abundance or uneven amount of mortar do to overlapping the screed box. Proper placement from batch to batch will help eliminate screed box track marks. Also, it is helpful to smooth significant excess piles or peaks of the placed mortar left at the end of a run or at an obstruction or uneven placement by bucketing or wheelbarrow. Extension poles with smoothing paddles can help smooth inconsistent mortar place-

ment and screed box overlaps while keeping laborers off their knees. Uncovered substrate or areas with thin mortar can be filled by throwing some fresh mortar in the area while troweling.

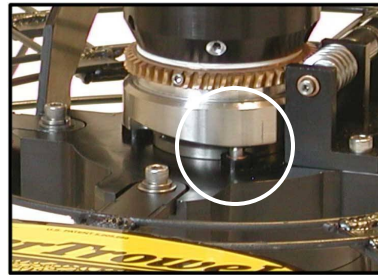
Note: Never allow the *HoverTrowel* to stand static on the fresh mortar. This could cause mortar to be thrown on finished floor areas and could damage the motors gearing by creating extreme start up torque.

Enter the freshly placed mortar from right side and move to the left. This natural movement of material with your first pass over properly screeded mortar helps in the easier filling of small voids and any slightly high or low areas. Increasing or decreasing the pitch of trowel blades is easily accessible during operation with *HoverTrowel's* patented in-use pitch control adjustment. The pitch control allows quick and precise pitch changes during operation. A clockwise rotation of pitch control knob will decrease pitch, while a counter clockwise rotation will increase pitch (angle of the blades).

A troweling lubricant may be needed, depending on the sand to liquids ratio, supplied air pressure, temperature, and the desired finish. Check with your specific material supplier for their suggested trowel lubricant and tool cleaning recommendations.

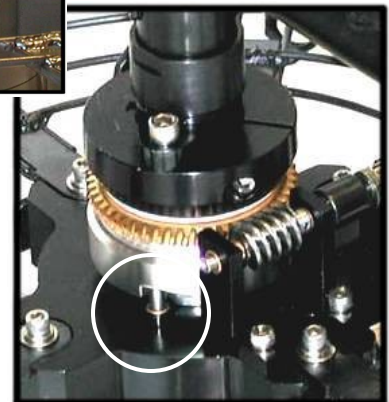
Helpful Hints:

- Mineral spirits , denatured or isopropyl alcohols are typical lubricants.
- Material manufacturer should always be consulted.
- Some manufacturers' allow using water, usually when topcoats are planned.
- These liquids help keep the trowel blades cleaner during operation. Having a spare set of blades allows rotating in a clean set of blades periodically.
- The amount of lubricant needed will decrease as your air supply approaches maximum psi and cfm. With ideal flow rate of the mineral spirits would mainly be applied for cleaning the trowel blades. Also, the drier the system the less lubricant would be needed.

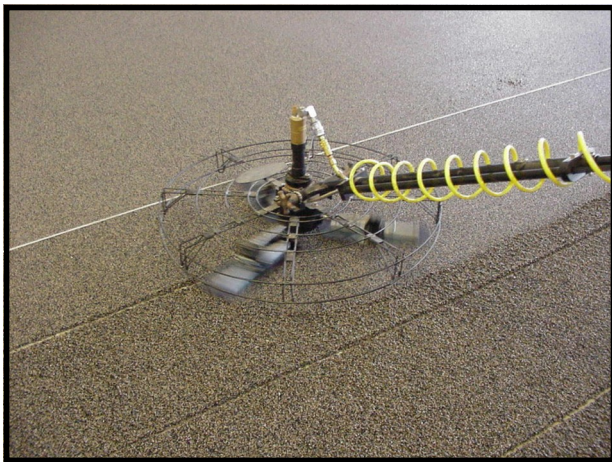


Pin at Zero Pitch

Pin at Full Pitch



Broadcasting a dry aggregate is also a widespread practice to act as a trowel-ease when the air supply is low or for sticky resin rich systems. Broadcasting a small aggregate (silica, garnet, glass beads to mention a few) onto the freshly laid bed of mortar will reduce the surface tension of a resin rich system, which reduces the torque required to rotate the blades. This should be done prior to troweling. This dry aggregate will wet out and be absorbed in the mortar as the finish troweling takes place. This is very useful for polyacrylates and other polymer modified systems. For obvious reasons, this shouldn't be used for color quartz systems.



The *HoverTrowel* can be used on a wide variety of mortar systems, not just the higher sands to liquids ratios like conventional trowels. When installing resin rich systems, the liquids brought to the surface by the troweling operation can be back rolled to eliminate any need to grind or aggressively sand the surface to remove any swirl marks created by the trowel. Unlike the troweling with the heavy conventional power trowels, these swirl marks are just in the surface liquids and not in the mortar.



Weight can be added to the *HoverTrowel* when required. The need and amount of weight can vary simply because of operator preference to the mortar system itself or even different ambient and slab temperatures. The accessory weight studs are attached to the guard covered in detail in the assembly section of this manual. The weight studs should be slipped through the openings in the wire guard with the plate resting on top of the guard and the washers and wing nuts are fastened from below. The weight studs can be left on the guard, but the weights should be removed for transport. The weights are slid on and off these studs easily during operation.

The **HoverTrowel** is the only lightweight pneumatic power trowel on the market today. It was solely developed to finish trowel aesthetic and industrial polymer toppings. The trowel's assorted air motors provide various torque loads for finishing a wide range of sand to liquid mortar systems at varying ambient and slab temperatures. The radical difference of the **HoverTrowel** is the combination its operating weight range and the torque loads produced by the triple reduction multi-vane motors. The result of this combination is a power trowel that doesn't produce the swirl or chatter marks that are associated with conventional power trowels. It eliminates the need to "bulk out" the topping with more aggregates to support the weight of the gas or electric trowels. This feature, along with its hardened steel blades greatly reduces the "burnishing" created by the abrasion of the blades and overtroweling. This is extremely important when troweling lighter floors, whether they are pigmented or clear liquids with decorative aggregates. Polymer blades are available to virtually eliminate any possible discoloration or burnishing from overtroweling. Stainless steel blades can be used on cementitious mortars where blushing is a concern.

HoverTrowel Inc., is proud the unit is entirely "Made in the USA" from carefully selected materials to produce this precision lightweight, but extremely durable trowel. The **HoverTrowel** is a precision tool, engineered and machined to very strict tolerances to achieve its ideal lightweight power trowel for polymer toppings. Treat it that way. It must be given clean, dry air and lubricated at all times. This means NEVER running the trowel without a filter or extractor. Maintain the motor by following the manufacturer's Operations and Maintenance Manual. **The motors should never be taken apart.** Should a problem arise take the motor to an authorized service center. It is good practice to have the motor serviced from time to time.

The **HoverTrowel** is a tool designed and built to improve the quality of polymer floor installations. The desired finish still rests solely on the operator. The care and understanding of the operator towards any flooring installation will always be the main factor in a job well done. The **HoverTrowel** dramatically reduces the room for error by experienced and inexperienced operators alike. It puts the importance more on an evenly placed mortar.

Never run the **HoverTrowel** without its safety guard. Running the unit without the guard could cause personal injury, damage to the trowel or the struck object. Ear protection should be worn, especially when working in confined space. It is also a good practice to wear eye protection when operating the **HoverTrowel**. Do not use solvents in restricted or flammable areas. The buyer/operator assumes responsibility for compliance with the safe operation as instructed.





HoverTrowel Inc.
5048 Spruce Lane
Mohnton, PA 19540

Phone: (610)-856-1961
Fax: (610) 856-1920
www.hovertrowel.com
Email: sales@hovertrowel.com



DECEMBER 2013