

GAS VAPOR PROBE SYSTEM



209.86



209.95

OPERATING MANUAL

AMS, Inc.

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Thank You! We appreciate your purchase of an AMS Gas Vapor Probe System. You now have the finest System available today for environmental assessment and monitoring. We would like you to know that at AMS we have two goals, customer satisfaction and the best available product in terms of design and quality. The innovations developed for the AMS Gas Vapor Probes have been awarded patents in the USA and in foreign countries. Please take the time to read and understand the information contained in this manual before you try to use this equipment. A clear understanding of how each component works and should be used will assist in making your AMS GVP System the most useful and efficient tool in your armamentarium of site assessment tools. Included are many helpful hints that will make your use easier, safer and more effective.

A reply card is enclosed with the Kit, it will allow you to confirm to us that all items are included and it will allow us to register you as the user of this Kit. From time to time we will update you on new accessory items, application information and new product or safety information. We will appreciate your returning this card promptly.

Particular care needs to be exercised with this equipment. It includes an electric rotary hammer drill of significant power, please take care when using it and always check that the power supply and cord are in good condition. Use of below ground devices may be hazardous if prior care has not been taken to identify, mark and allow adequate clearance to known utilities, tanks, pipes etc. Please see page 13 for details of the AMS Limited Warranty.

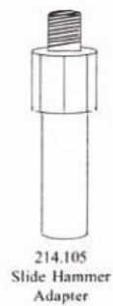
Although your Kit has been designed specifically for placement of devices used to recover soil gas samples, it may also be used for collection of soil and ground water samples as well, with the use of separate accessory items, see page 11 for details.

Today, instruments used to detect specific hydrocarbons are sensitive, in many cases, to parts per billion. It is therefore very important to always take particular care never to contaminate any parts of the system that may eventually come into contact with the sample. Absolute cleanliness is essential when handling the Teflon® tubing, connectors, sampling pump and sample containment devices.

Finally, if you have any questions about the Kit or it's application please feel free to call us at 1-800-635-7330. For overseas users, please contact your local, appointed, AMS Distributor.

AMS, Inc.
105 Harrison
American Falls, Idaho, USA

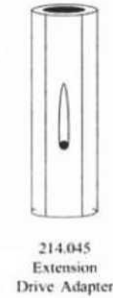
THE AMS GVP KIT COMPONENTS



214.105
Slide Hammer
Adapter



214.18
Drill Adapter
- SDS Max



214.045
Extension
Drive Adapter



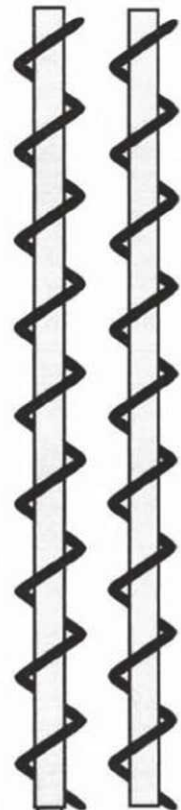
213.94
DeWalt D25763K- 2' SDS Max
Combination Hammer Drill



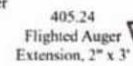
214.22
1 1/2" Concrete
Bit-SDS Max



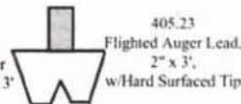
400.99
AMS Slide Hammer



214.20
SDS Max Drill
Adapter
for Flighted Auger



405.24
Flighted Auger
Extension, 2" x 3'



405.23
Flighted Auger Lead,
2" x 3',
w/Hard Surfaced Tip



403.10
Tile Probe Base
5/8" x 3' Complete



403.11
Tile Probe Extension
5/8" x 3'



214.06
4130 GVP Extension
5/8" x 3'



214.09
Tip Drive
End

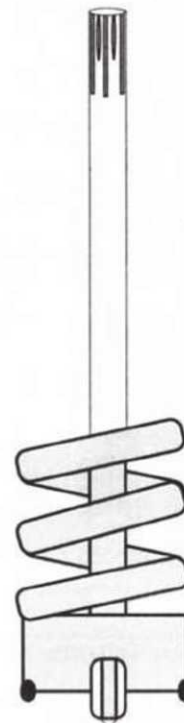


210.01
AMS Retract-a-Tip*

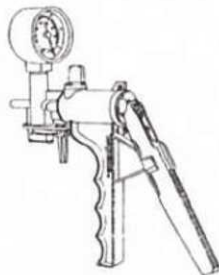
211.00
GVP Dedicated Tip
w/Teflon® Washer*
*Protected by U.S. and Foreign Patents



405.26
Flighted Auger
Tungsten Carbide Bit



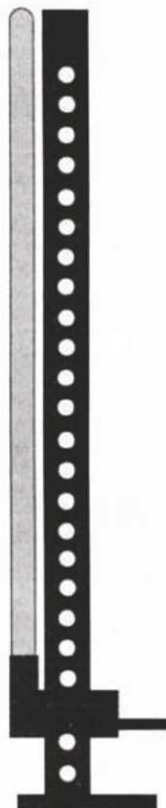
214.26
2 1/2" Concrete
Bit-SDS Max



215.06
Hand Vacuum Pump



215.00
250' Teflon® Tubing



211.05
Removal Jack

AMS GAS VAPOR PROBE KIT DESCRIPTIONS

Check your order and delivery docket/invoice to be certain that you have received the Kit needed. Use the right hand column to check each item. Use the illustrations on page 3 to help identify components.

| | |
|---------|--|
| 209.84- | Gas Vapor Probe Kit with DeWalt D25763K Drill |
| 210.00- | Gas Vapor Probe Kit with DeWalt Drill D25600K |
| 209.19- | Gas Vapor Probe Kit without Electric Drill |
| 209.86- | Gas Vapor Probe Kit with Retract-a-Tip & DeWalt D25763K Drill |
| 210.02- | Gas Vapor Probe Kit with Retract-a-Tip & DeWalt D25600K |
| 209.16- | Gas Vapor Probe Kit with Retract-a-Tip, without Electric Drill |
| 209.93- | Heavy Duty Gas Vapor Probe Kit with Flighted Auger & DeWalt D25763K Drill |
| 209.95- | Heavy Duty Gas Vapor Probe Kit with Flighted Auger, Retract-a-Tip & DeWalt D25763K Drill |

Kit Component Check List

| Part No. | Description | 209.84 | 210.00 | 209.19 | 209.86 | 210.02 | 209.16 | 209.93 | 209.95 | CHECK |
|----------|--|--------|--------|--------|--------|--------|--------|--------|--------|-------|
| 213.94 | DeWalt D25763K Drill | 1 | - | - | 1 | - | - | 1 | 1 | |
| 214.18 | Drill Adapter, SDS Max | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 213.92 | DeWalt D25600K Drill | - | 1 | - | - | 1 | - | - | - | |
| 214.09 | Tip Drive End (5/8") | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 214.06 | 4130 GVP Extensions, 5/8" x 3' | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | |
| 214.045 | Extension Drive Adapter | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 210.01 | AMS Retract-a-Tip | - | - | - | 1 | 1 | 1 | - | 1 | |
| 211.00 | GVP Dedicated Tips w/Teflon® Washer | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | |
| 214.22 | 1 1/2" Concrete Bit, SDS Max | 1 | 1 | 1 | 1 | 1 | 1 | - | - | |
| 215.06 | Hand Vacuum Pump Complete w/adapters | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 215.00 | 250' Teflon® Tubing | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 400.99 | AMS Slide Hammer | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 214.105 | Slide Hammer Adapter | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 430.01 | AMS Deluxe Carrying Case | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 211.05 | AMS Removal Jack | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 403.10 | Tile Probe Base, 5/8" x 3' Complete | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 403.11 | Tile Probe Extension, 5/8" x 3' | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | |
| 405.23 | Flighted Auger, 2" x 3' Lead w/Hard Surfaced Tip | - | - | - | - | - | - | 1 | 1 | |
| 405.24 | Flighted Auger Extension, 2" x 3' | - | - | - | - | - | - | 2 | 2 | |
| 405.26 | Flighted Auger Tungsten Carbide Tip | - | - | - | - | - | - | 1 | 1 | |
| 214.20 | SDS Max Drill Adapter for Flighted Auger | - | - | - | - | - | - | 1 | 1 | |
| 214.26 | 2 1/2" Concrete Bit, SDS Max | - | - | - | - | - | - | 1 | 1 | |
| 209.00 | VHS Instruction Video | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |
| 209.01 | AMS GVP Manual | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | |

PREPARING TO SAMPLE- Using the Tile Probe

Prior to undertaking any sampling activity at a site there are several important steps to be taken to avoid damage to the site and potential injury to the sampling personnel. The site should be surveyed for the presence of underground utilities, pipelines, underground tanks and piping as well as other structures or objects. The positions of known underground objects should be flagged and marked with water based spray paint.

The Sampling Plan will indicate the positions and depths at which samples will be collected. It is strongly recommended that at least 3' (1m) separates the outer edge of any identified underground object from the sampling point. It is not always possible to maintain an absolutely true direction for the probe, hence the suggested clearance. The AMS Gas Vapor Probe Kit includes a set of heavy duty Tile Probes that should, preferably, be used with the AMS Slide Hammer to pre-drill the hole, prior to placement of either an AMS GVP Dedicated Tip or the AMS Retract-a-Tip. The items needed are as follows:

| | | |
|-----|---------|--|
| | 400.99 | AMS Slide Hammer or Electric Drill (213.88) |
| | 214.105 | Slide Hammer Adapter or Drill Adapter (214.18) |
| | 214.045 | Extension Drive Adapter |
| | 403.10 | Tile Probe Base, 5/8" x 3' Extension and point |
| 3 x | 403.11 | Tile Probe Extensions, 5/8" x 3', w/coupling |
| | 211.05 | AMS Removal Jack |

Probing the area first provides the benefit of locating unknown obstructions without risking damage to the selected GVP Probe and will also speed the sampling process. Use the Electric Hammer Drill with a 1 1/2" Concrete Bit (214.22) to cut a hole in pavement if necessary, prior to using the Tile Probe.

Assemble the Tile Probe by attaching the Extension Drive Adapter to the proximal end of the Tile Probe Base extension. Thread the Slide Hammer Adapter into the end of the AMS Slide Hammer. Place the round end of the Slide Hammer Adapter into the round socket in the Extension Drive Adapter. Raise the assembly to the vertical and hammer into the ground to the sampling point, adding Tile Probe Extensions as needed.

The Tile Probe may be recovered with the Removal Jack. Place the jack jaws underneath the Tile Probe coupling, set the lever to "up" and then use the Jack lever to raise the rods from the ground. Experience, gained through practice and use, will allow the operator of the Tile Probe to gauge the compaction of the soils and the possible type of obstruction encountered. When Using the Tile Probe at sites where buried man-made objects may be anticipated, move the Tile Probe slowly into the ground by gentle use of the Slide Hammer. In soft soils, an AMS Cross Handle (406.04) and AMS adapter (403.12) may be used to push the probe.



PREPARING TO SAMPLE- Preparing the sampler

For many soil conditions, where there is the possibility of small soil particles blocking the ports of the sampling tip, it will be advantageous to use the optional stainless steel screens: (212.05, GVP Tip, 210.03 Retract-a-Tip). Assemble these to the tip first.



AMS Gas Vapor Probe
■ AMS Gas Vapor Point, Screen &



AMS Gas Vapor Probe
■ AMS Retract-A-Tip #210.01 &

Decontamination of the the Gas Vapor Points or the Retract-A-Tip should usually be done prior to going to the site. Decontamination at the sampling site may be difficult, particularly if low levels of contaminants are anticipated. Always use clean single use gloves when assembling the tip components, and ensure that the components are cleaned before assembly. If necessary the components may be dried by placing them on the demister vent of the car or truck and running the demister at high with full heat for a few minutes.

Next determine the depth at which a sample will be collected, then cut a length of Teflon® tubing from the roll, allow extra to provide for easy sampling when the tip is installed, or the Retract-a-Tip is at the lowest sampling point. Attach one end to the barbed nipple on the selected sampling tip. Assemble from the sampling tip up:

- For the Dedicated GVP Tip (211.00), pass the open end of the Teflon® tube through the Tip Drive End (214.09) then the GVP Extension with Extension Drive Adapter (214.045) on the upper end.

- For the Retract-a-Tip, pass the tubing through the GVP Extension and Extension Drive Adapter.

Keep the excess tubing exiting the Extension Drive Adapter port clean, preferably by using a poly-bag. You are now ready to place this in the prepared hole, or drive it in with the AMS Slide Hammer or Electric Hammer Drill.

PREPARING TO SAMPLE- Installing the Sampler

First place the assembled sampler, comprising Tip assembly, Extension, and Extension Drive Adapter, Tip downwards into the hole prepared with the Tile Probe, or directly on the surface if soil conditions will permit direct use. Ensure that the angle with reference to vertical is as required before attempting to drive in the sampler assembly. Driving may be accomplished with the AMS Slide Hammer (400.99) or either of the Electric Rotary Hammer Drills, DeWalt (213.94) or B&D (213.94).

- The AMS Slide Hammer (400.99) is first attached to the Slide Hammer Adapter (214.105). The round end of this adapter is placed in the round socket of the Extension Drive Adapter (214.045) attached to the top of the assembled sampler.

- When using the Electric Rotary Hammer Drill first set the Variable Speed Dial at midpoint, the Selector to "Hammer Only" and fit the SDS Max Drill Adapter (214.18) into the drill chuck. Place the round end of this adapter into the round socket of the Extension Drive Adapter (214.045).

When the first extension has been lowered or driven into the ground place a clamp (not supplied) around the extension at the ground surface, to stabilize it. Lift the driving device off the probe assembly and loosen and remove the Extension Drive Adapter from the Extension and the Teflon® tubing. Pass the tubing through another GVP Extension (214.06) with the coupling down. Attach this Extension to the one protruding from the ground. Pass the Extension Drive Adapter over the tubing, threaded end first. Attach it to the Extension proximal end. Remove the ground clamp and continue to drive and add extensions as needed until the sampling point or points have been reached.

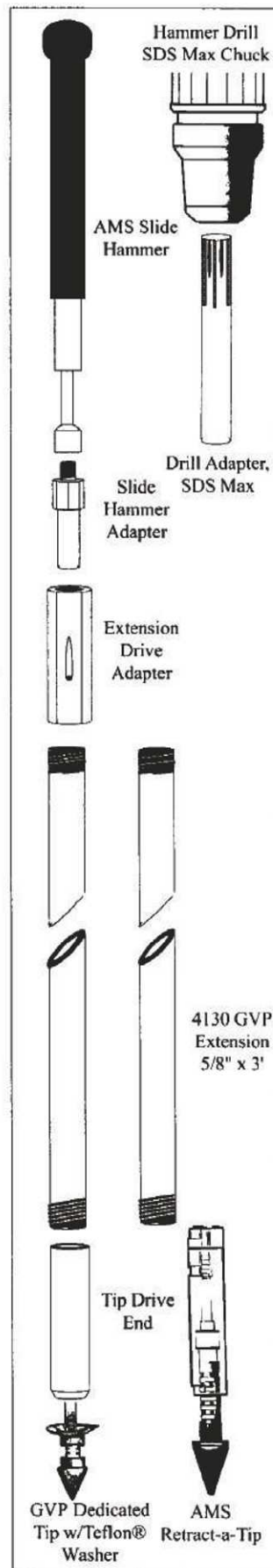
PREPARING TO SAMPLE- GVP Tip

Before a sample may be collected it will be necessary to expose the tip and in most cases also remove the Tip Drive End (214.09), GVP Extensions (214.06), and the Extension Drive Adapter (214.045). In some soils, at shallow depths, these may be manually pulled up, leaving the GVP Tip (211.00) attached to the Teflon® tubing in the ground. Alternatively the Removal Jack can be used (211.05). Adjust the Jack so that the jaws are beneath the lowest GVP Extension Coupling and it is set to "lift". See the instruction sheet included with the jack for full details. Gently push the handle to lift the sampler from the soil. Take care to keep the tubing clean and allow to pass unobstructed into the Extension Drive Adapter as the Sampler assembly is removed from the ground. When removed fill in around the tubing with sand or native soils followed by bentonite chips or powder to provide a permanent seal. Attach the Teflon® tubing to the sample collection system with a short piece of flexible tubing, see page 9.

PREPARING TO SAMPLE- Retract-a-Tip

The Retract-a-Tip is designed for soil gas surveys where it may be necessary to collect soil gas samples from several points in the same hole. When the first point is reached pull back the sampler assembly 1/2" (1.3cm) either manually or with the Removal Jack (211.05). Take the sample as described on page 8 and then continue to drive in the Sampler Assembly to the next sampling point. When sampling is completed for this hole, remove the sampler and pack the hole with native soils and/or bentonite chips, powder or grout.

(7)

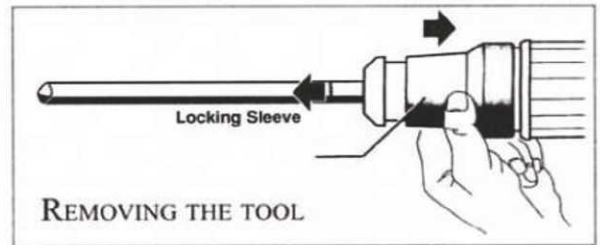
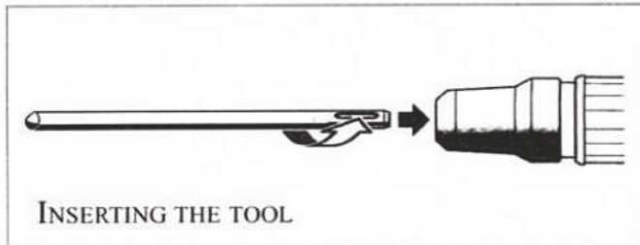


USING THE DRILL- DeWalt D25763K Hammer Drill

DeWalt D25763K- 2" SDS Max Combination Hammer Drill provides high torque capability from a variable speed, non-reversible, 120v 14 amp motor, weight 24.5lbs.

Basic safety precautions should always be taken when using this tool:

- Use safety equipment: Dust mask in dusty conditions
 - Ear protection for extended use
 - Safety glasses or goggles at all times
 - Wear cushioned gloves, don't handle used tools with bare hands
- Avoid accidental starting:
 - Check switch is off before connecting cord
 - Do not carry tool with finger on the switch
- Avoid injury:
 - Keep cord away from rotating bit
 - Never use with one hand, always use the side handle
 - Take care when drilling through concrete for utilities
 - Hold the drill by the insulated handles only when in use

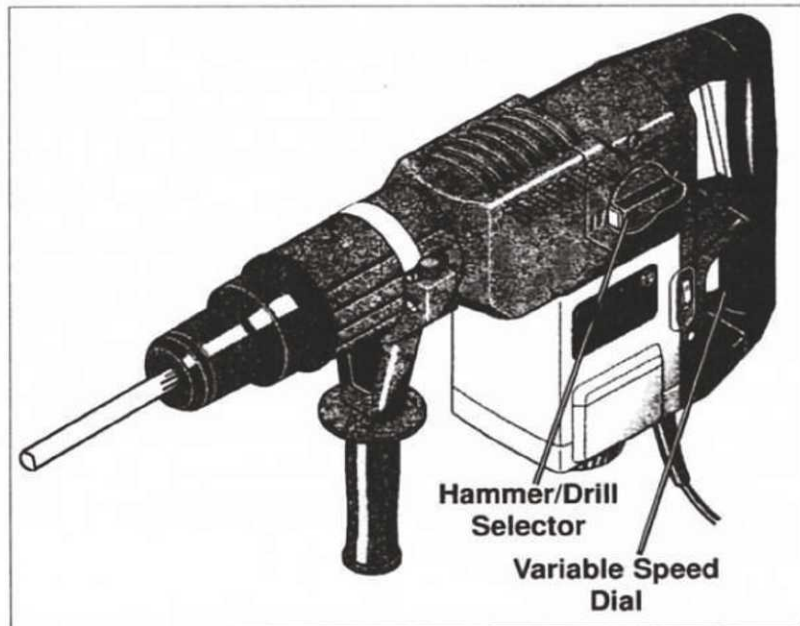


This tool is fitted with fast change chuck (SDS Max Drive System), that allows easy tool changing without the use of a key. Simply insert the adapter shank (214.18, for the Tile or Gas Vapor Probes or 214.20 for the Flighted Auger) through the dust shield, then rotate and push in until it slides down and locks automatically. Pull outward to check that it is correctly locked. Removal is also simple. Pull back and hold the locking sleeve, at the same time pull the adapter forward to release it from the bit.

The drill is provided with three controls: On/Off Trigger switch, A Variable Speed dial, 1-6, and Selector Lever. Pre-set the speed for the job in hand, for most soil applications use low/medium speeds. The selector lever should be set for Drilling/Hammering when the concrete bit is used, or Hammer only when Tile or Gas Vapor Probes are being used. Start up speed and running speeds are electronically controlled and will stay constant between load and no load. This tool also has a pre-set slip clutch which will operate when a tool binds and overloads the tool. This "smart" tool also is provided with a "service reminder light" which will illuminate when it is necessary to have the tool serviced. After a further 8 hours use the tool will shut down.

When using this tool with the AMS Gas Vapor Probe

Kit be sure that the Adapters, Tool Points and Extensions are all in good condition. Threads should be cleaned after each use. If thread lubrication is desired or necessary use only solid vegetable oil very sparingly. Never attempt to apply rotation to the hammer tooling, injury could result.

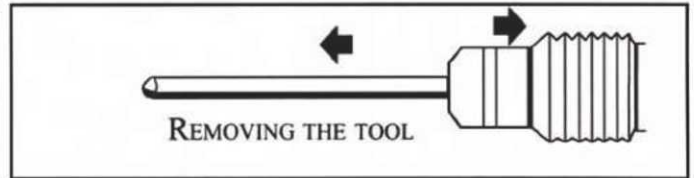
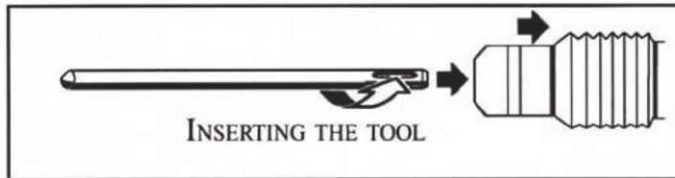


USING THE DRILL- DeWalt D25600K

The DeWalt D25600K Electric Rotary Hammer Drill provides high torque capability from a variable speed, non-reversible, 120v 11.5 amp motor, weight 13.4lbs.

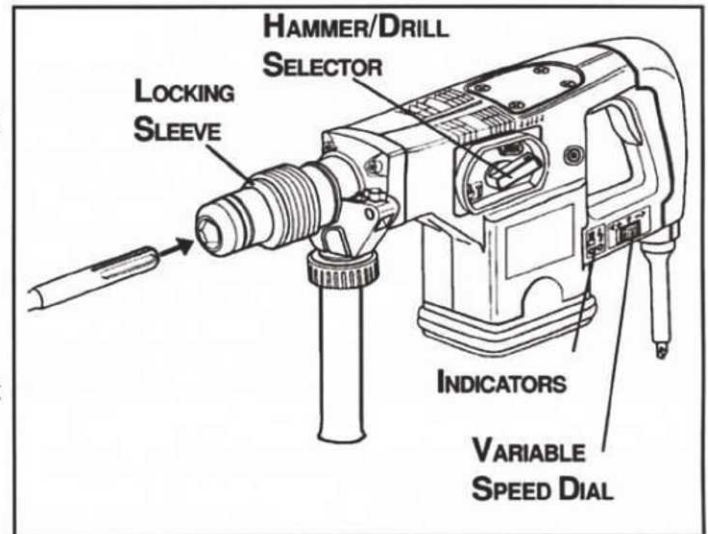
Basic safety precautions should always be taken when using this tool:

- Use safety equipment: Dust mask in dusty conditions
 - Ear protection for extended use
 - Safety glasses or goggles at all times
 - Wear cushioned gloves, don't handle used tools with bare hands
- Avoid accidental starting: Check switch is off before connecting cord
 - Do not carry tool with finger on the switch
- Avoid injury: Keep cord away from rotating bit
 - Never use with one hand, always use the side handle
 - Take care when drilling through concrete for utilities
 - Hold the drill by the insulated handles only when in use



This tool is fitted with fast change chuck (SDS Max Drive System), that allows easy tool changing without the use of a key. Simply insert the adapter shank (214.18, for the Tile or Gas Vapor Probes or 214.20 for the Flighted Auger) through the locking sleeve, then rotate and push in until it slides down and locks automatically. Pull outward to check that it is correctly locked. Removal is also simple. Pull back and hold the locking sleeve, at the same time pull the adapter forward to release it from the bit.

The drill is provided with three controls: On/Off Trigger switch, A Variable Speed dial, 1-5, and Selector Lever. Pre-set the speed for the job in hand, for most soil applications use low/medium speeds, 1-3. The selector lever should be set for Drilling/Hammering when the concrete bit is used, or Hammer only with Spindle Lock when Tile or Gas Vapor Probes are being used. Start up speed and running speeds are electronically controlled and will stay constant between load and no load. This tool also has a pre-set slip clutch which will operate when a tool binds and overloads the tool. This "smart" tool also is provided with a red "service reminder light" which will illuminate when it is necessary to have the tool serviced. After a further 8 hours use the tool will shut down. A green power-On indicator lights when the tool is switched on.

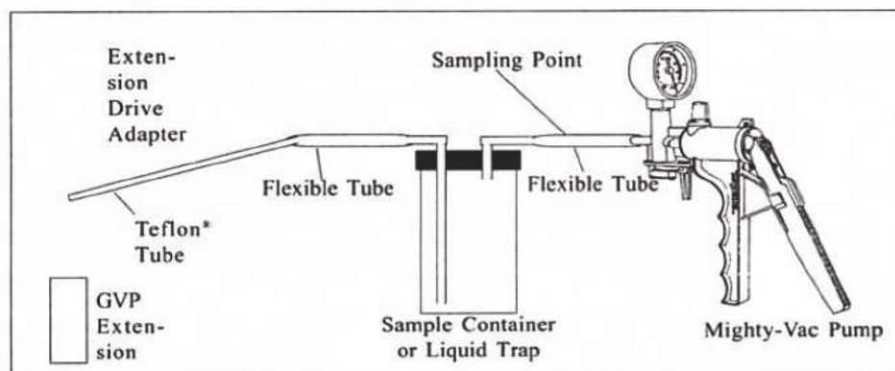


When using this tool with the AMS Gas Vapor Probe Kit be sure that the Adapters, Tool Points and Extensions are all in good condition. Threads should be cleaned after each use. If thread lubrication is desired or necessary use only solid vegetable oil very sparingly. Never attempt to apply rotation to the hammer tooling, injury could result. For full details and warranty/service information on the DeWalt Rotary Hammer Model 25600K see the instruction manual and warranty certificate included with the drill.

COLLECTING SAMPLES- Soil Gas

The importance of maintaining a clean environment for collection of the soil gas samples cannot be over-emphasized. Take particular care with all parts of the system to exclude foreign materials whether liquid, (water or solvents), solids (dust, soil particles) or gaseous (vehicle exhausts, windborne, on-site releases). The sole objective being to allow collection of a representative sample of the soil gas.

Application of a gentle vacuum to the proximal end of the Teflon® tube will draw soil gas into through the selected Gas Vapor Tip and then into the tubing, and ultimately the pump.



The vacuum may be provided by any of the following:

- The Mighty-Vac hand pump supplied with the AMS GVP Kit
- A separate, 12v, electric vacuum pump, preferably a diaphragm, oil-less type of inert construction
- An internal gas displacement type pump found in many portable FID and PID type gas analyzers
- Other hand or mechanical pumps, preferably oil-less and made from inert materials
- A portable vacuum reservoir type system
- A single use evacuated sampling can

Usually it will be advantageous to collect the sample in an intermediate or transfer container, prior to the vacuum source. This eliminates any possibility of the vacuum pump contaminating the sample. A second, important benefit will be the prevention of any solid particles or liquid entering the pump. The Mighty-Vac Kit provided by AMS includes a plastic intermediate container and two sealable tops for use with standard and wide mouth mason jars. The kit also includes tubing and a range of male and female tubing fittings, (See the Mighty-Vac Instruction Pamphlet included with the pump). An alternative to containerizing the sample would be to directly sample the soil gas as it exits the intermediate container. A short piece of flexible tubing, eg silicone, placed in the line from the container to the pump would be the sampling port. Then, using a glass syringe and needle the sample would be drawn from the soil gas stream. This sampling method is often employed when a field portable or mobile Gas Chromatograph is used.

COLLECTING SAMPLES- Soil

The standard and heavy duty Gas Vapor Probe Kits provide the means to access a sampling point using the Tile Probe and/or Retract-a-Tip. When the soil gas sampling is completed the tools are removed and a special small diameter (5/8" x 12") AMS Soil Probe(427.21) or AMS Soil Recovery Probe(427.26) may be used with the Slide Hammer(400.99) and GVP Extensions(214.06) to collect a soil sample at the sampling point.

COLLECTING SAMPLES- Ground Water

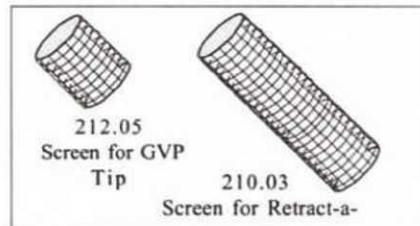
The Retract-a-Tip or Dedicated GVP Tip, when fitted with the optional screen makes an excellent sampler for the collection of shallow ground water samples, down to a maximum depth of about 25' (8m). The sample would be recovered with a peristaltic pump or vacuum generating pump with an intermediate collection container in line with the sampling tube. For sampling at greater depths, AMS offers Direct Push or Hollow Stem Auger equipment with sampling devices that will allow collection of soil or ground water samples at depths of 50' (16m) or more, dependant on soil conditions.

ACCESSORY PRODUCTS for the AMS GVP SYSTEM

Special Applications

The AMS Gas Vapor Probe Kits are designed for use in normal soils and wastes. Sampling plans for hazardous sites may specify that an acid bath decontamination be undertaken. In these cases you are advised to order all stainless steel down hole tools:

| | |
|------------|--|
| 213.01 | Stainless Steel GVP Extension, 1/2" x 3' |
| 213.00 | Stainless Steel GVP Extension, 1/2" x 4' |
| 214.02 | GVP Tip Drive End, 1/2" (Carbon Steel) |
| 2 x 213.04 | Adapter, 1/2" Female - 5/8" Male (Carbon Steel) (For Retract-a-Tip and Extension Drive Adapter) |



Soil Gas

Sampling fine grained soils with either the Dedicated GVP Tip or the reusable Retract-a-Tip can potentially cause blockage when the vacuum is applied to the tip. To avoid this and in fact enhance the effectiveness of sampling in regular soils AMS offers an 0.009" aperture Stainless Steel Screen for attachment to both of the GVP Tips:

| | |
|--------|--|
| 212.05 | Stainless Steel Screen for the AMS Dedicated Tip |
| 210.03 | Stainless Steel Screen for the AMS Retract-a-Tip |

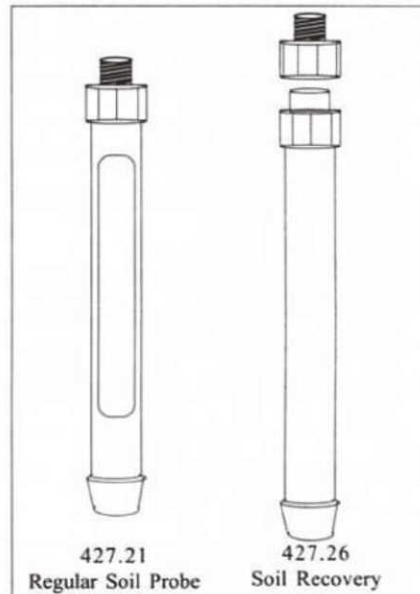
Soil

For soil sampling from the hole prepared by the AMS Gas Vapor Probe there are Soil Probe type Samplers available, designed to use the standard AMS GVP extensions. Select a 12" long by 5/8" diameter probe in either:

| | |
|--------|---------------------------------|
| 427.21 | Regular Soil Probe, 12" x 5/8" |
| 427.26 | Soil Recovery Probe, 12" x 5/8" |

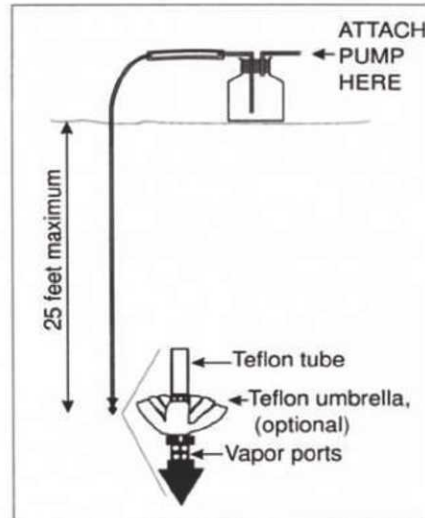
The Soil Recovery Probe allows the use of removeable retaining cylinders for collection of the sample. Select from the following soil containment supplies:

| | |
|--------|--|
| 427.27 | Stainless Steel Retaining Cylinder, 12" x 1/2" |
| 427.29 | Plastic Retaining Cylinder, 12" x 1/2" |
| X1837 | Plastic Cap for Retaining Cylinder, 1/2" |
| 418.16 | Teflon® Film 0.002" x 4" x 4" |



Water

Sampling perched, shallow ground water can be accomplished with either the Dedicated GVP Tip or the AMS Retract-a-Tip. In both instances it is essential that the tip be fitted with one of the optional stainless steel screens, described above. Water samples would usually be collected with a peristaltic type pump. This will work with an operating head of 20-25 feet from the ground surface. Sampling at greater depths would require the use of a larger diameter hole and a grab sampler such as a bailer or miniature bladder or gear type pump.



Power Equipment

AMS offers self contained truck or trailer mounted equipment for both auger drilling and direct push core sampling. This equipment may also be used to install AMS Gas Vapor Probes. Contact AMS or your appointed AMS Distributor for details.



AMS FLIGHTED AUGER,

(included in the HEAVY DUTY GVP KITS, 209.93 & 209.95)

The AMS Flighted Augers and extensions may be used to prepare a nominal 2"(5cm) hole with the Rotary Hammer Drill. The auger outside diameters are oversized by up to 1/4", to facilitate placement of samplers of the same nominal size. Depths up to 9'-12' are possible, dependent on soil conditions. Tips are replaceable and made with either a tungsten carbide hard surface or a solid tungsten carbide insert. They are designed to prepare the hole prior to using either the AMS Retract-A-Tip or Dedicated GVP point. They will be found particularly useful in compacted soils or those with fragmented rock in the upper layers.

The AMS Flighted Auger is the most efficient tool available in terms of effort required and speed needed to produce a small hole in most soil types. Directional drilling from horizontal to vertical in excavations or beneath buried objects is easily undertaken. They may be used with Soil Core Samplers for soil sampling and bailers with or without a piezometer casing for perched ground water sampling.

Assemble the lead auger with a tip and Rotary Hammer Drill with the SDS Max adapter. Place at the desired angle on the soil surface and turn on. Add auger extensions and repeat until the sampling depth is reached. All connections are threaded, ensure that the threads are cleaned prior to assembly. To decontaminate use a steam cleaner or hand wash with a brush.

The lead auger, tips and extensions are made from carbon steel. The lead auger has a tungsten carbide hard surface applied to the first 18" of the flight. The standard tip is similarly finished. A tip with a tungsten carbide insert is also available. The lead auger couplings are female threaded, extensions male by female. The AMS GVP Heavy Duty Kits are provided with the 2" size in carbon steel. AMS Flighted Augers in all stainless steel and a 1 1/2" (3.8cm) size are also available, contact AMS or your local AMS distributor for details:

Available stock sizes with order number:

Carbon Steel

| | Size | Order Number | Size | Order Number |
|---------------------|--------|--------------|------------|--------------|
| Lead auger w/HS tip | 2"x 3' | 405.23 | 1 1/2"x 3' | 405.00 |
| Hard surfaced tip | 2" | 405.25 | 1 1/2" | 404.99 |
| Auger extension | 2"x 3' | 405.24 | 1 1/2"x 3' | 405.01 |
| Carbide Insert tip | 2" | 405.26 | 1 1/2" | 404.98 |

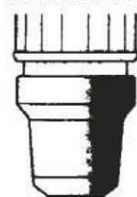
Stainless Steel

| | | | | |
|---------------------|--------|--------|------------|--------|
| Auger section | 2"x 3' | 409.32 | 1 1/2"x 3' | 409.30 |
| Stainless auger tip | 2" | 409.36 | 1 1/2" | 409.34 |

(The AMS Stainless Flighted Auger has a male by female threaded connection and female threaded auger tip.)

The Carbide and Hard Surfaced tips may be used with the Stainless Steel Auger section, contact AMS for an adapter kit to convert the male to a female.

Hammer Drill
SDS Max Chuck



214.20
SDS Max Drill
Adapter
for Flighted Auger



405.23
Flighted Auger Lead,
2" x 3',
w/Hard Surfaced Tip



405.26
Flighted Auger
Tungsten Carbide Bit

LIMITED WARRANTY

(Contact the supplier of your Gas Vapor Probe Kit initially with respect to any warranty claim)

Products manufactured by AMS, Inc., (Art's Manufacturing & Supply, Inc., American Falls, ID.), are warranted, under normal and intended use, to be free of defects in material or workmanship for a period of thirty (30) days from the date of purchase under the following conditions:

Warranty is limited to the repair or replacement of part or parts which are determined to be defective through inspection and evaluation at AMS by AMS staff or a representative designated by AMS. Additionally, this warranty is rendered null and void if the product is found to have been damaged due to misuse or **has come in contact with any unforeseen obstacles in the field that the equipment was not intended to handle, ie: boulders, foundations, etc.**

Shipping to and from AMS, American Falls, ID., of all products returned for repair and/or replacement will be the responsibility of the Buyer unless Buyer & AMS otherwise agree in writing. Any travel expenses for service visits by AMS personnel or their designated representative will be the responsibility of the Buyer. Any unauthorized repair or alteration of equipment will void this warranty in its entirety.

All equipment returned to AMS, Inc., must be certified free of contamination. A written statement certifying decontamination must accompany such equipment. If it is determined that the Buyer's equipment is contaminated it will be returned to the Buyer at the Buyer's expense and the Buyer will be responsible for any damages that AMS may incur. Any expense incurred by AMS for decontamination or inspection is the responsibility of the Buyer. Contaminated equipment will not be repaired, replaced or covered under any warranty until such time that the said equipment is decontaminated by the Buyer.

Equipment sold by, but not manufactured by AMS, is covered by each individual manufacturer and is not covered under this AMS warranty.

In no event or circumstance will AMS, Inc., or its representative be liable for injury, damage, or loss, direct or consequential, incidental, indirect, punitive, or special, arising out of the use or inability to use equipment sold by AMS, Inc.

All liability and risk is assumed by the Buyer from the time of delivery. The Buyer will be solely responsible for use and suitability of equipment for intended use.

A M S, Inc.
105 Harrison
American Falls, Idaho 83211-1230

This warranty is subject to change without notice.

USE AND CARE OF SAMPLING EQUIPMENT

AMS takes particular care in the selection of materials and manufacturing processes used to make their sampling equipment. The following advice will ensure that your AMS sampling equipment will perform as designed:

- Soil bucket type augers and auger tipped samplers are now dipped in a peelable plastic coating for protection. This should be removed and the auger washed in water with detergent added before use.
- AMS equipment with Quick Connect fittings are intended only for rotational sampling. AMS does not recommend that they be used with the Slide Hammer or other percussion device. Disassemble the Quick Connect retainer button assembly often. Clean and inspect for excessive or unusual wear. Do not lubricate the button assembly.
- AMS equipment with threaded connections should always be cleaned very thoroughly before re-assembly. This will ensure that the threads do not bind. If lubrication of threads is needed, then AMS suggests that common vegetable shortening be used sparingly on the cleaned threads only. Teflon® plumbers tape may also be used to protect threads.
- When decontaminating stainless equipment using an acid bath, immerse for the minimum time possible.