

H & M Gopher Control
(530) 667-5181
1979 County Road 106 Tulelake CA 96134

OPERATING INSTRUCTIONS:

MODELS: PERC 206 AND PERC 412
EPA Est. No 083419-CA-001

WARNING: NEVER operate the PERC unit within one hundred and fifty feet of a structure inhabited by humans or livestock. **Exposure to the exhaust gasses and carbon monoxide that the PERC generates can kill or cause permanent brain and nervous system damage.**

WARNING: DO NOT TOUCH the exhaust recovery manifold where it captures exhaust from the engine muffler. It is **HOT** and can cause serious burns to the unprotected hand or skin.

NOTE:

Before starting the motor, check motor oil and compressor oil to make sure they are at the proper levels. Service the motor following directions and procedures as specified in the motor operators' manual.

NOTE:

Change the oil in the Champion compressor before use each season. Use only the grade of oil that is specified in the compressor operating instructions manual.

STARTING THE PERC:

- SLOWLY open the PVC drain ball valve that drains the pressure tank.
- Start the motor following the procedure in the **gas engines general instructions installations operations and maintenance manual**.
- Once the motor is up to speed, close the PVC drain ball valve to allow tank pressure to build.

NOTE:

The load genie will automatically control the tank pressure between preset settings of 115 to 85 psi. The motor will shut down to an idle at 115 psi and the centrifugal clutch will disengage the compressor. When the pressure drops to 85 psi, the load genie will automatically increase the throttle to the motor and the centrifugal clutch will engage to drive the compressor.

NOTE:

High and low idle motor speeds are set at the factory. Low speed idle is 1600 rpm max with NO "grabbing" felt on the centrifugal clutch. High speed idle is 3000-3100 rpm. at high speed idle, the compressor speed should be between 800 and 850 rpm at 40 psi.

NOTE:

Each unit is supplied with either 2 for the 206 or 4 for the 412 18" X 3/8" air hose with a clamp. These are for use with open burrow rodents. (prairie dogs, ground squirrels, digger squirrels, etc.) The 1/4" tip is taken off the hand piece weldment and the hose is slipped onto the end of the 1/8" pipe and secured with the screw clamp. The hose is then inserted into the open burrow and the burrow is sealed with a shovel full of dirt and the gas valve is turned on purging the burrow of air and filling it with carbon monoxide.

SERVICE:

Service the motor according to the operators' manual. Change the oil in the compressor every 100 hours or twice a year. Use oil recommended in the compressor operator's manual. Each day after running the PERC, open the drain valve at the rear bottom of the pressure tank and leave open until the motor is started for the next operational use. Close the valve after the motor is started and up to operating temperature.

Once the tank pressure is achieved, the operator can start treating underground rodent burrows.

Burrowing Rodent Profiles:

GOPHERS:

Gophers maintain an ideal burrow system to be treated with the PERC system. Except when the females are having and caring for young, each gopher will maintain a solitary closed burrow system. They will create as many as six or more mounds, but the main burrow will connect all laterals and will be continuously patrolled by the gopher. Usually a gopher will have a two-tiered burrow system. The lower tier will connect food caches and nesting dens as well as an upper level of burrows used for feeding and disposing of dirt in mounds. A single burrow system can contain as much as 600 feet of burrow. Gophers do not hibernate. Females will have multiple litters a year and from two to six pups per litter.

When treating gopher burrows to kill gophers, it is preferable to probe for the lower main run since that has the best access to the entire burrow system. If the lower tier burrow cannot be found, effective kills can be obtained by treating the upper burrows. A single burrow system should be probed and carbon monoxide injected in several locations to insure that CO is being released into the burrow. Two minutes injection time is recommended. Treating fresh mounds is the most effective with the harrowing or elimination of old mounds prior to treatment sometimes preferential. Kick or spread mounds out after treatment so reoccurrence of new mounds can be assessed.

Probing between the mounds or about six to eight inches from the mound is usually the best location to find the lower burrows. Probing a very small 'popper' mound can be an easy way to find the lower burrow. Many times a burrow will have a 'crust' encircling the burrow that the operator will feel just before the probe breaks into the 'free fall' of the burrow. Many burrows are shaped like a horseshoe. Probing the area leading into the apex of the horseshoe is a productive area to find a lower burrow.

A second and third pass through the field after the initial treatment to treat new mounds can result in up to a 90 percent and better kill rate.

Excessive pressure on the probe in dry or compacted soils can bend the probes. It is usually preferable to treat gophers when there is sufficient soil moisture to make probing burrows fairly easy. Saturated clay soils can cause the injection jets at the end of the probe to plug. Highly porous soils, dry sandy or gravelly soils are difficult to obtain a sufficient level of CO to kill gophers.

GROUND SQUIRRELS:

PERC is very effective to treat and eliminate ground squirrels. Because ground squirrels hibernate in the late fall and winter, treating is limited to when they are active breeding, feeding and building burrows in early spring and summer.

Ground squirrels are community rodents with multiple squirrels living in a single extended burrow system. Males will open up the burrows in very early spring, sometimes when snow is still present. It is presumed that the males are looking for females to mate with while the females are still in dens, having and raising the first of several litters of young.

The brass coupling that attaches the 12" X 1/4" wand tip is replaced with the 18" X 3/8" air hose, clamping the air hose to the end of the 1/8" pipe of the hand piece.

It is recommended that the hose is inserted into the open, active ground squirrel burrow and a shovel of dirt is used to seal the burrow before the gas is turned on. All active burrows within a colony should be treated and sealed. Each hole probed should have an injection time of one minute or more.

It has been observed in the field that young ground squirrels are very sensitive to carbon monoxide leading to the conclusion that the earlier they are treated in the spring, the more effective the kill rate.

A second and third pass through the field is desirable to find reactivated ground squirrel holes for treatment. Following this procedure can produce kill rates in excess of 90 percent.

PRAIRIE DOGS:

A field trial in Colorado has proven that the PERC system is very effective in controlling and even eliminating prairie dogs.

NOTE Please Read:

To avoid non-targeted species do not apply where there is evidence of white bird droppings around the burrow. Burrowing Owls are likely to inhabit that burrow. Do not use this device in areas where the US Fish and Wildlife Service determine that the Black Footed Ferret exists. Use extreme caution when approaching Prairie Dog burrows as the Western and Timber rattlesnakes have been known to inhabit their burrows.

Application instructions: The brass coupling that attaches the 12" X 1/4" wand tip is replaced with the 18" X 3/8" air hose, clamping the air hose to the end of the 1/8" pipe of the hand piece.

The hose is then inserted into the prairie dog burrow as far as it will go and dirt is shoveled on top of the hose and wand stem sealing the hole. The gas valve is then turned on purging the prairie dog burrow of air and filling it with carbon monoxide. All 'live' or active holes should be treated. A second and even a third treatment are recommended to eliminate the prairie dogs that were missed previously. The probe should be left in the burrow from one to two minutes.

FIELD MICE:

Field mice can be killed with PERC. Single colonies of field mice have been eliminated. A simple procedure of continuous injection of carbon monoxide in most of the burrows in a colony will kill the field mice. The holes do not need be sealed, but most of the burrows should be injected with CO. Mice that escape the burrows can revive. A field wide infestation of field mice has not been attempted.

MOLES:

Moles can be killed with PERC but it is very important that the carbon monoxide is injected into their lower burrows. The surface feeding burrows are too porous to allow a lethal dose of CO. The lower burrow can be found by digging a hole at the end of the surface burrow. Once located, the hole should be probed to get the 'feel' of when the probe hits the burrow under ground. After that 'feel' is realized, subsequent burrows do not have to be dug out, only probed and the gas valve turned on.

WARRANTY:

H & M Gopher Control warrants the basic construction of the PERC 412 and the PERC 206 for a period of 90 days from the date of purchase. Parts are furnished within the warranty period at no charge. Labor is furnished on all units returned to H & M. Freight on units returned to the customer will be prepaid by H & M. This warranty is limited to the basic construction of the units covered. Individual component are warranted by the component manufacturer. Not covered under warranty is breakage from misuse, probe tip wear, air hose failure other than what is covered under the manufacturer's limited warranty for hose and reels.

This warranty document can be altered or changed at any time at the sole discretion of H & M.

**H & M Gopher Control
1979 County Rd 106
Tulelake CA 96134
(530) 667-5181**