

GUS SAMPLER

[Gregory Undisturbed Sampler]

This unique, air or hydraulic piston sampler was designed and test proven in the drilling field for many years. The design allows the sampler to be classed as a truly undisturbed piston sampler producing high production sampling.

HOW IT WORKS

The GUS Samper is assembled on a drill rod and lowered to the bottom of a cleaned bore hole. The drill rod may be chucked by means of a chucking rod. A water swivel is attached with a hose line coupled to the swivel and the pressure pump.

As the water or air pressure is applied to the drill rods at approximately 100 to 600 PSI, the piston in the head of the assembly forces the thin wall sample tube in the soft underlying soil or clay materials to take the sample.

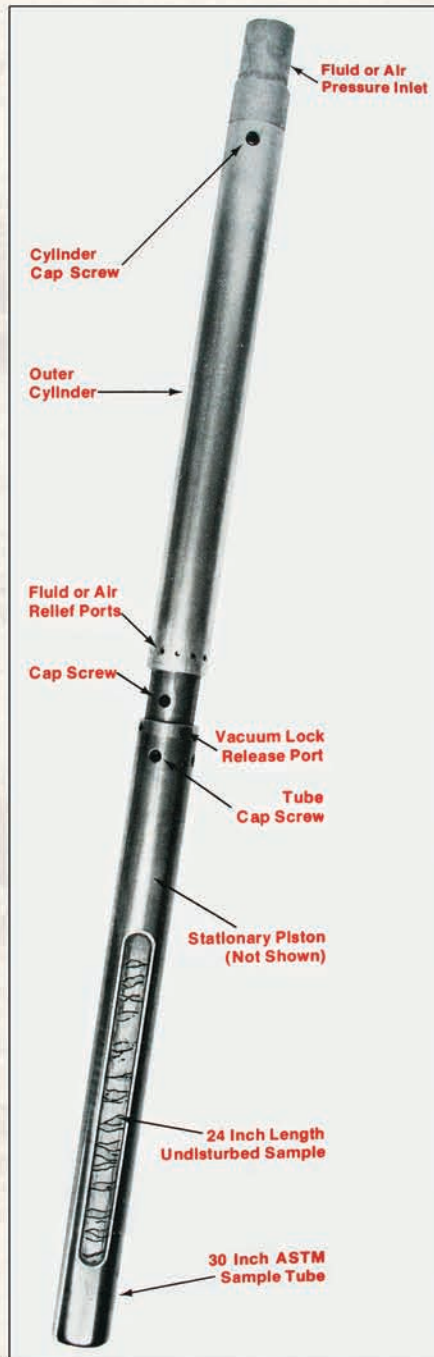
Once the sampler reaches the end of its maximum travel, the water or air used for pressing exhausts through a relief hole and returns immediately to the surface. This is a signal to the operator that the sample has been taken to its maximum depth.

Depending upon the materials being sampled, the sampling may take only a few seconds or as much as one minute to reach its maximum travel.

A compressed air bottle or tank may be used in lieu of a fluid pump for pressing the sample, however, one must be careful to limit tank pressure to prevent "over pressure" which may collapse the sample tube.

After the sample has been taken, the rods and sampler are pulled to the surface and the sampler is layed out on the work table for removing of the sample tube containing the sample.

The outer tube of the sampler containing the sample is rotated in a counter clockwise direction three turns which releases the "vacuum lock" created over the sample in the sample tube and allows for easy removal of the sample tube from the assembly. A new sample tube is then installed on the sampler head for additional tests and the procedure repeated.



IN OPERATION

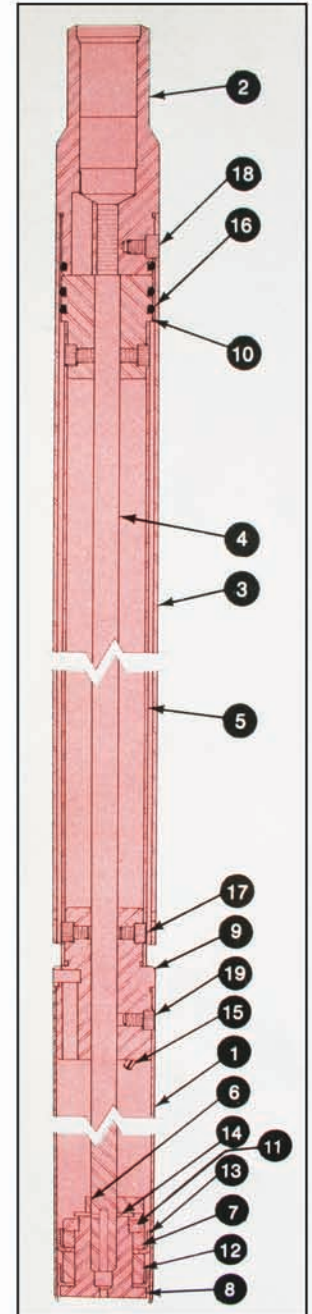
- (1) The hole is drilled by rotary means and prepared by using either casing or drilling mud to support the overburden.
- (2) The drill rods extending the sampler to the bottom of the hole may be clamped to the casing to prevent upward movement from down thrust of fluid or air pressure used...or rods may be connected to the chucking rod in rotary drill head.
- (3) A water swivel or adaptor is used to direct fluid or air into the drill string to operate the sampler.
- (4) A positive displacement pump or compressed air is used to exert pressure on the stationary piston of the sampler. Pressure range normally required is 100 to 600 PSI for at least one minute.

FEATURES OF THE GUS SAMPLER

- Bore hole size need not be larger than sampler size in use.
- Available in 4 popular sizes - 2-1/2", 3", 3-1/2", 5" (63.5, 76.2, 88.9 & 127 mm)
- Fluid or air under pressure is required to operate sampler
- Simple to operate - there is no need for actuating rods or complicated procedures
- Uses standard ASTM thin wall steel sampler tubes with standard holes and cap screws
- Sampler adapts directly to standard AW or NW drill rods
- Used in holes cased with mud, steel casing or self supporting auger holes
- Piston closes off sampler until sample is taken
- Maximum length of sample recovered is 24" (609.6 mm)
- Maximum pressure required - 100 to 600 PSI
- Stainless steel actuating cylinder
- Drill rig is not necessary for sampling; however, hoist is required to lift tools and sampler from the drill hole
- Inexpensive when compared to other comparable types of samplers

GUS SAMPLER

Ref. #	Desc.	# Per Unit	2-1/2" Part #	3" Part #	3-1/2" Part #	5" Part #
	Rod Connection Head		"AW"	"NW"	"NW"	"NW"
1	Tube Sampler	1	120086-4	120037-4	120093-11	120109-4
2	Adapter (Rod Box)	1	120798-1	120798-5	120798-3	120798-4
3	Cylinder	1	120799-1	120799-2	120799-3	120799-4
4	Rod, Piston	1	120800-1	120800-6	120800-6	120800-4
5	Tube, Inner	1	120801-1	120801-2	120801-3	120801-4
6	Latch, Release	1	120802-1	120802-2	120802-3	120802-4
7	Retainer	1	120803-1	120803-2	120803-3	120803-5
8	Piston	1	120804-1	120804-2	120804-3	120804-4
9	Adapter (Inner Tube to Sample Tube)	1	120805-1	120805-2	120805-3	120805-4
10	Carrier, Tube	1	120806-1	120806-2	120806-3	120806-4
11	Nut	1	120807-1	120807-2	120807-2	090400-15
12	Spacer	1	150035-336	150035-312	150035-337	150035-376
13	Cup, Packing	2	150045-14	150045-11	150045-12	150045-39
14	Washer, Leather	1	150045-87	150045-71	150045-71	150045-111
15	Rollpin	1	090107-214	090107-214	091022-37	090107-215
16	"O" Ring (2) Piston - 1 Adapter	3	090108-328	090108-332	090108-336	090108-348
17	Capscrews	11	120652-0	120652-0	120652-0	120652-0
*	O-Ring	1	090108-113	090108-310	090108-210	090108-214
*	Oil Seal	2	090363-22	090363-37	090363-37	090363-73
*	Grease Fitting	1	090359-16	090359-16	090359-16	090359-16



*Assembly and Sample Tubes				
Size	Assembly Part #	Head Conn.	Soil Seals for Sample Tubes	Caps for Sample Tubes
2-1/2"	022142-1	AW	120872-2	090367-49
3"	022142-2	NW	120872-3	090367-55
3-1/2"	022142-3	NW	N/A	090367-56
5"	022142-5	NW	120872-5	090367-59

Operation **
 The thrust developed by the operation of the GUS Sampler may exceed weight of drill rig... Therefore, caution should be exercised when securing drill rods to casing, drilling equipment or actuating the sampler above ground.

Maximum operating pressure - 600 PSI.

Specifications - GUS SAMPLER Air or Hydraulic (Water) - Piston Sampler						
Sampler Size	Thread in Head Conn.	Sampler Stroke	Sampler Tube Length	Sample Diameter	Operating Pressure Nominal **	Wt. of Assy.
2-1/2" (63.5 mm)	AW Rod	24" (609 mm)	30" (762 mm)	2.347"	100 to 600 PSI (7.03 to 42.1 kg/cm)	42 lbs. (19 kg)
3" (76.2 mm)	NW Rod	24" (609 mm)	30" (762 mm)	2.841	100 to 600 PSI (7.03 to 42.1 kg/cm)	47 lbs. (21 kg)
3-1/2" (88.9 mm)	NW Rod	24" (609 mm)	30" (762 mm)	3.336	100 to 600 PSI (7.03 to 42.1 kg/cm)	51 lbs. (23 kg)
5" (127.0 mm)	NW Rod	24" (609 mm)	30" (762 mm)	4.75	100 to 600 PSI (7.03 to 42.1 kg/cm)	135 lbs. (61 kg)

