

OVERVIEW

Magazine Assembly

The magazine assembly has two functions. Its primary function is to store and feed fasteners into the nose of the tool. Its secondary function is to house the battery and battery contact assembly.

Motor Assembly

The motor assembly is made up of components that:

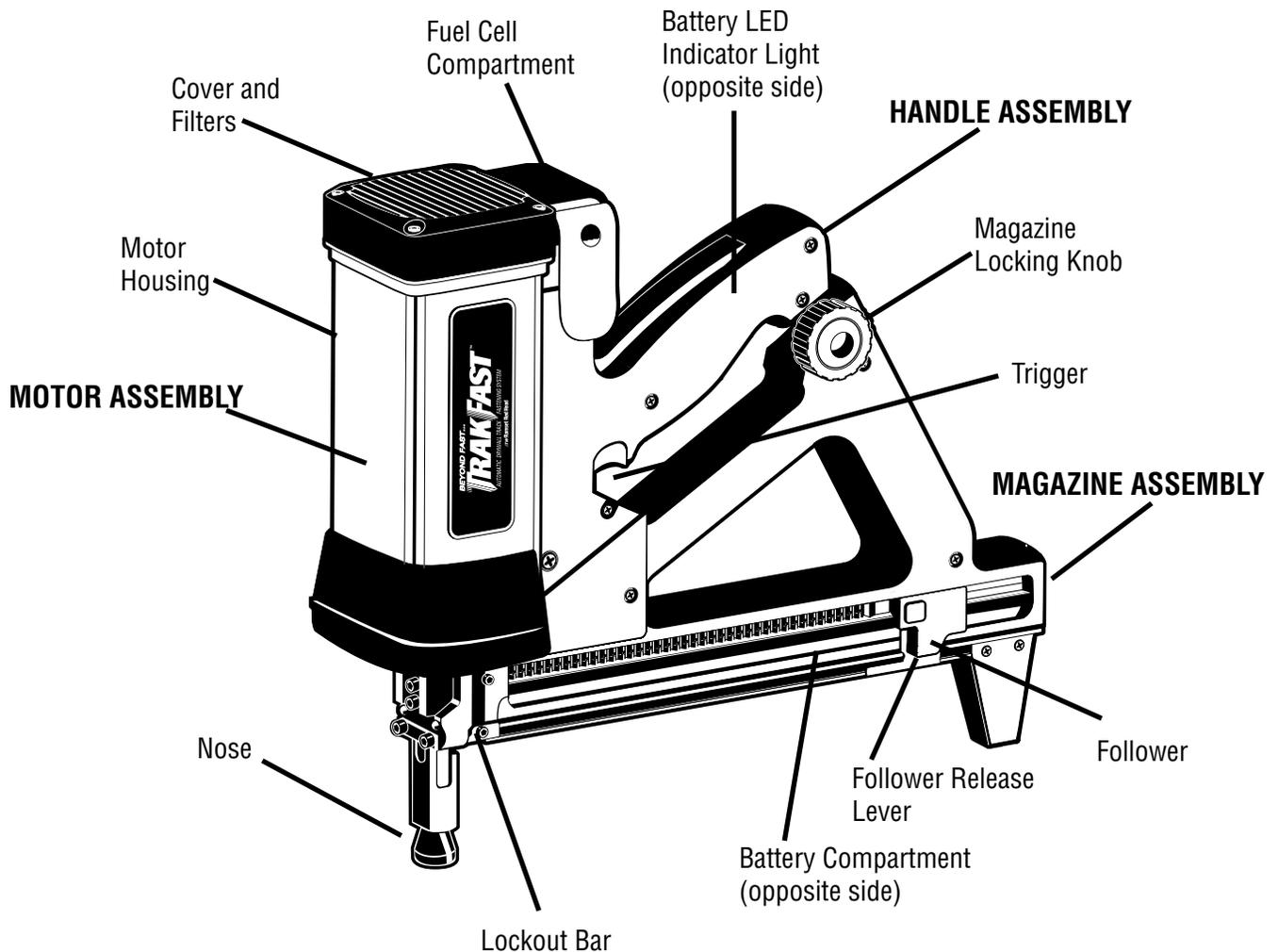
- Control the piston assembly
- Control intake of the fuel/air mixture
- Vent exhaust gases

This assembly generates and controls forces that drive the fasteners. It will require the majority of routine service and/or repair.

- Piston Assembly
- O-Rings

Handle Assembly

The handle assembly contains electrical components, and the fan motor and fan. The electrical components provide spark for combustion. The fan mixes fuel with air and also cools the motor.



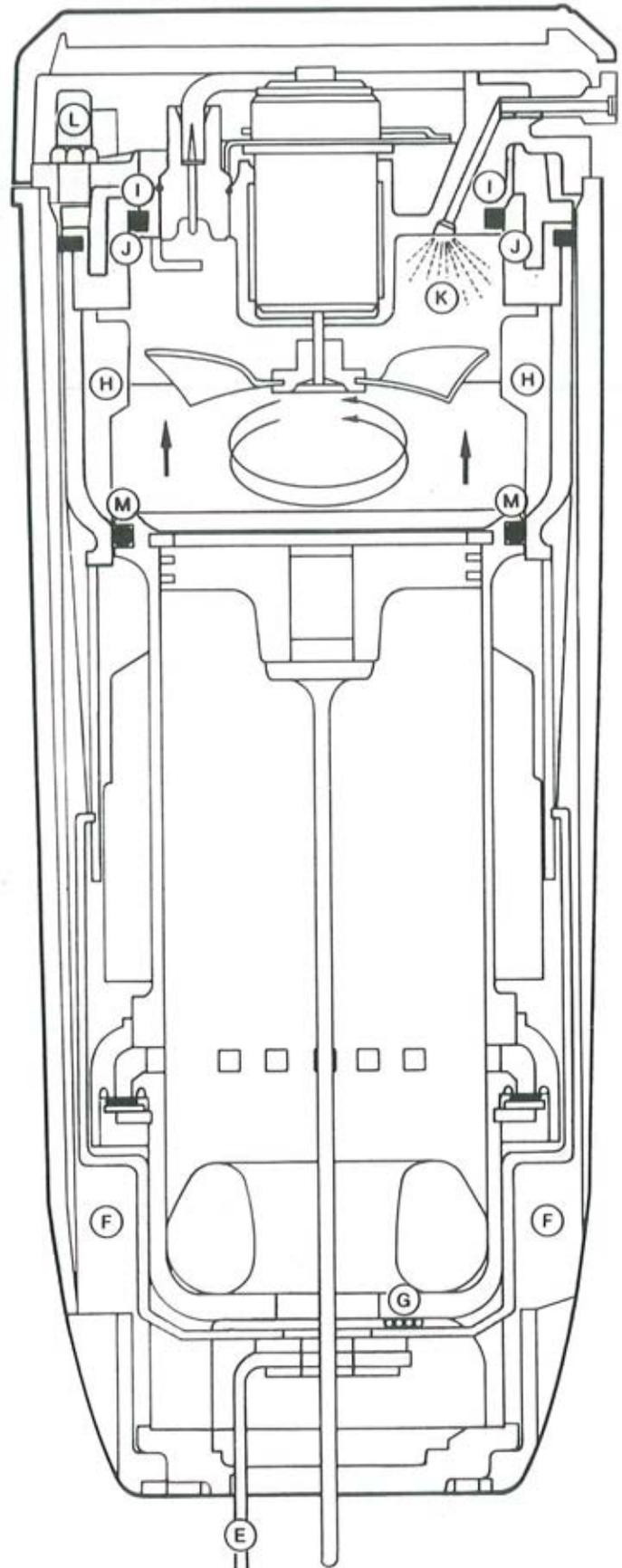
START and PRE-COMBUSTION

When lower probe (E) is pressed against the work surface, cage (F) is forced against the spring (G). Combustion chamber (H) is raised up against cylinder head (I), and O-Rings (J & M) seal off the combustion chamber, creating an air tight seal.

This initial movement, pressing the lower probe against the work surface, causes the fuel cell/metering valve assembly to pivot. This meters a precise amount of fuel through the cylinder head and into the combustion chamber cavity (K).

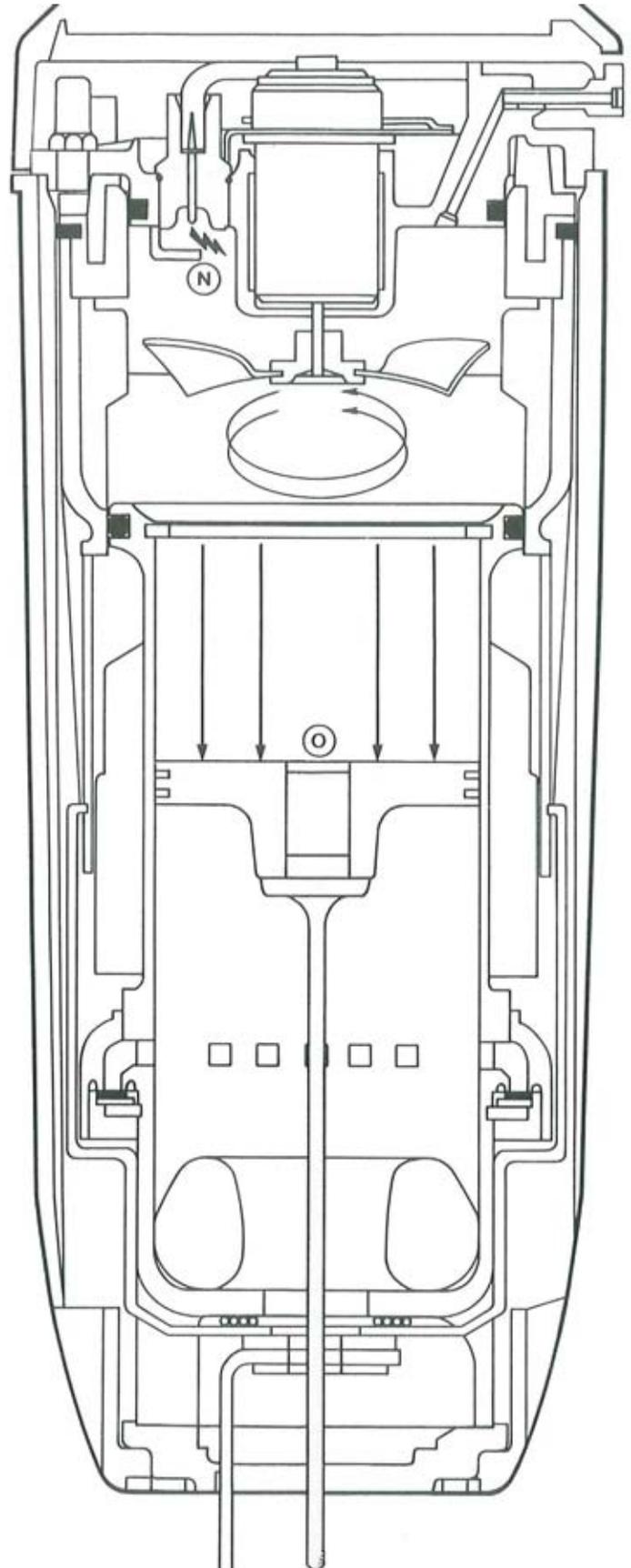
As the combustion chamber is raised, fan/enable switch (L) is depressed and the chamber lockout bar is moved out of the way of the cam. The fan starts and mixes air with a metered amount of fuel to provide a combustible mixture.

The chamber lockout bar prevents the trigger from being activated until the lower probe is pressed against the work piece, raising the combustion chamber.



Combustion

Depressing the trigger activates the ignition circuit. This causes a spark (N) to jump the gap between the spark element and cylinder head, igniting the fuel/air mixture in the combustion chamber. Piston assembly (O) is forced downward driving the fastener into the work surface.

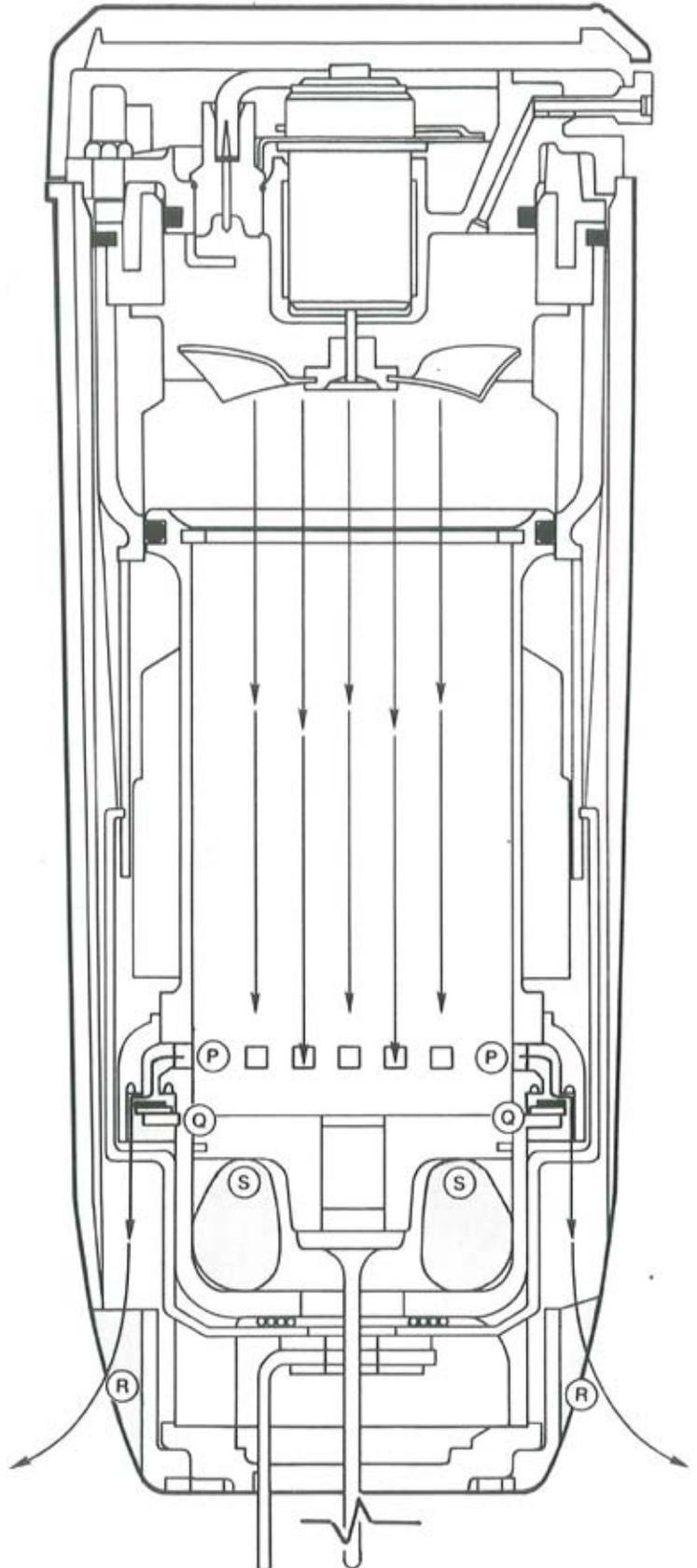


Power/Exhaust

Downward movement of the piston assembly, past exhaust ports (P), allows exhaust gases to exit.

The pressure of the exhaust gases against the flat washer compresses the wave washers, allowing the gases to flow through the mid-check area (Q) and out of the tool through the exhaust ports in the bottom of the housing (R).

At the bottom of stroke, the piston assembly strikes bumper (S).

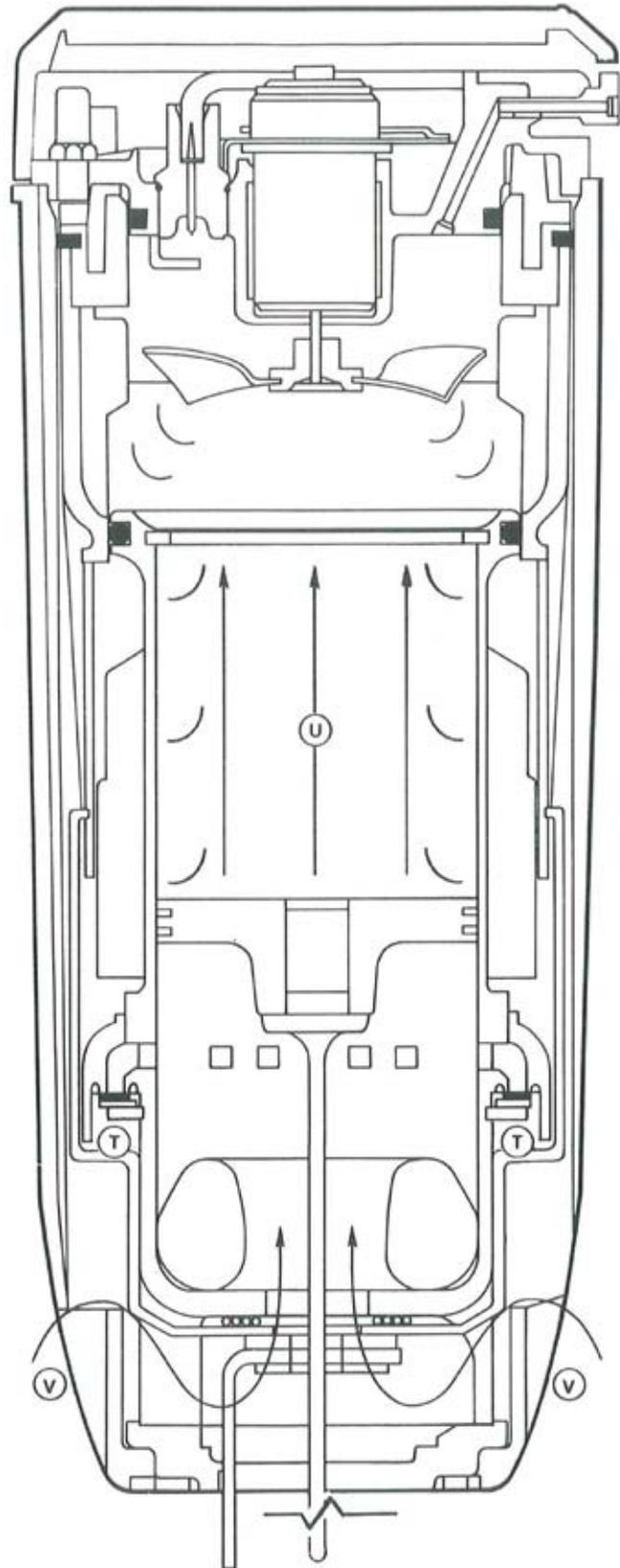


Return

Reduced pressure within the combustion chamber allows wave washers (T) to reseal the combustion chamber.

Rapid cooling of gases trapped in the combustion chamber (U) creates vacuum.

This vacuum is strong enough to lift and hold the piston assembly in its starting position. As the piston assembly moves up the sleeve, air is drawn in through ports in the housing nose (V).



Purging

The combustion chamber drops when the tool is lifted from the work surface and the trigger is released. This opens the seal between the combustion chamber and cylinder head O-Ring (W) and sleeve O-Ring (X).

The fan is now able to circulate fresh air into the combustion chamber, cooling the sleeve (Y) and purging any remaining exhaust gases from the tool through ports (Z).

