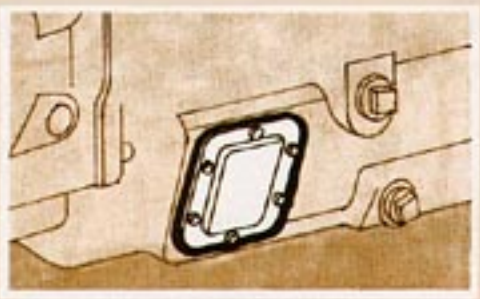
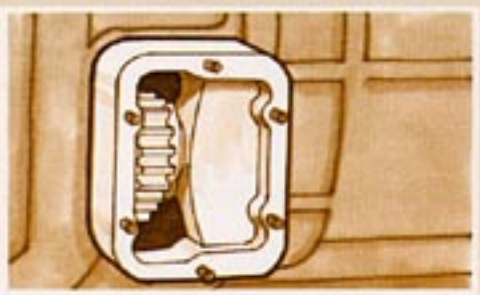
# Glossary of Power Take-Off Terms



**Aperture**—Standard SAE size opening on either side of the transmission which permits the installation of a power take-off. May be either six or eight-bolt opening.

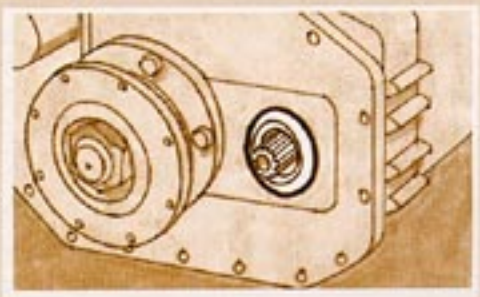


**Adapter Gear**—A single gear assembly which transmits torque between the transmission output gear and the PTO input gear. Used when the distance between gears is too great to permit direct meshing, or to reverse PTO rotation.

**Assembly Arrangement**—Refers to the location of the output shaft in relation to the gear. The preferred arrangement is with the output shaft to the rear.


**Backlash**—Clearance needed between the meshing of two gears to permit quiet, smooth operation. Recommended distance is .006 to .012." This is checked at pitch line.

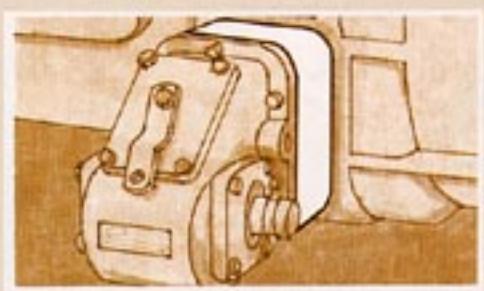
**Constant Mesh**—Relation of two or more gears which always rotate in continual contact with each other.



**Counter Shaft**—Secondary shaft in the transmission on which the PTO drive gear frequently rotates.

**Deep Mount**—PTO whose design permits its input gear to extend further into the transmission case to permit direct contact with the transmission output gear.

**Engine Speed**—Revolutions per minute of engine crankshaft which determines the speed available to the transmission or PTO.



**Filler Block**—Fiber or metal plate of various thicknesses, assembled between the transmission and the PTO for the purpose of extending the distance between drive and input gears to permit proper meshing.

**Gear Ratio**—The relationship of the number of teeth on the output to those on the input gear. For example, a gear of 45 teeth driven by one containing 15 teeth would provide a ratio of 1:3. Hence, a gear of 15 teeth driven by one containing 45 teeth would have a gear ratio of 3:1.

**Helical Gear**—A gear whose teeth are cut on an angle diagnally across the gear either with a right or left-hand slant. In order for helical gears to mate, one must slant to the right . . . the other to the left.

**Horsepower**—A measure of the capacity for doing work per unit of time. One horsepower is the energy required to lift 550 lbs., one foot in one second.

**Idler Shaft**—Normally the shaft that the input gear rotates on. Transmits power to the output gear and shaft.

**Intermittant Operation**—Normally a stop-and-go operation, such as five minutes on/fifteen minutes off, ten minutes on/30 minutes off. If heat builds up through repeated activity (through repeated cycling operations or high loads), the activity ceases to become intermittant and would then be classified as **continuous operation.**

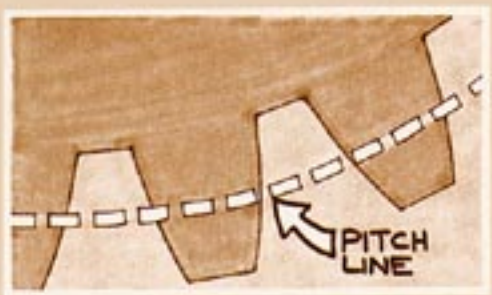
**Input Speed**—Revolutions per minute which the transmission output gear is capable of delivering to the PTO input gear.

**Input Gear**—The PTO gear first accepting the torque from the transmission output gear.

**Mainshaft**—The output shaft of the transmission that sends power to the driven unit, such as a rear axle.

**Output Shaft**—The shaft transmitting the torque from the PTO to the device or unit which it operates, i.e., hydraulic pump, winch, etc.

**Output Gear**—The driving gear which activates the output shaft.

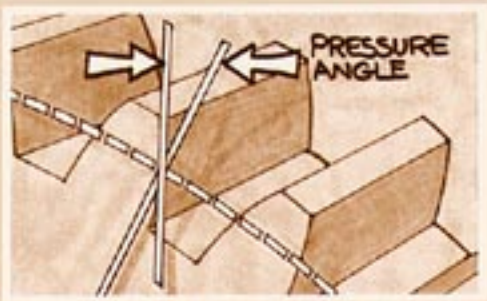



**Pitch Line**—The point on the gear tooth midway between the base of the tooth and the tip of the tooth.

**Pitch (Gear)**—The measure of the size of the gear teeth determined by the number of teeth in a given area measured at the pitch line. PTO gear pitch is normally classified as 5, 6 or 7-pitch.


**Pitch Diameter**—The distance across the center of the gear measured from the pitch line of one tooth to the pitch line of the tooth directly opposite that tooth.

**Pitch Line Velocity**—The speed of rotation in feet per minute of a gear measured at the pitch line.




**Pressure Angle**—The angle formed, measured in degrees, by a line drawn perpendicular to the pitch line, and a line drawn from the same point on the pitch line tangent to the tooth profile.

**Power Take-Off**—A gear box attached to a transmission, receiving its power through that transmission for the purpose of transmitting that power to another mechanical or hydraulic device, according to the speed and torque required to operate the device.

**Spur Gear**—A gear whose teeth are cut straight across the face of the gear.

**Standard Assembly Arrangement**—Output shaft towards the rear of the vehicle and below the PTO's centerline.

**Torque**—Effort required to perform a twisting or turning motion, often referred to as the force necessary to overcome resistance.

**Transmission**—A gear box which receives its power from an engine and which operates as a torque multiplier for the purpose of regulating speed and applying torque as required.

## Abbreviations

**ft. lbs.**—Foot Pounds. Torque force developed or required to overcome resistance.

**fpm**—Feet per minute.

**gpm**—Gallons per minute.

**hp**—Horsepower.

**I.D.**—Inside diameter.

**O.D.**—Outside diameter.

**plv**—Pitch line velocity.

**p.s.i.**—Pounds per square inch (pressure).

**rpm**—Revolutions per minute.

**SAE**—Society of Automotive Engineers.