

**(R) AUTOMOTIVE PULL TYPE CLUTCH
TERMINOLOGY—SAE J1479 APR91****SAE Standard**

Report of the Truck and Bus Powertrain Committee, approved January 1985. Completely revised by the SAE Truck and Bus Clutch Subcommittee of the Truck and Bus Powertrain Committee April 1991.

1. Scope—This SAE Standard describes the terms or names of the parts, characteristics, and parameters of automotive pull type clutches used in trucks, and of vehicle apparatus or components related to the pull type clutch.

2. References—There are no referenced publications specified herein.

3. Terminology

3.1 Adapter Ring—Often referred to as an intermediate ring. Normally used with two plate clutches that are used with flat type engine flywheels to drive the intermediate plate.

3.2 Adjusting Ring—A threaded ring inside the clutch cover assembly used to move the internal parts of the cover assembly and release bearing to compensate for wear of facings.

3.3 Bearing Housing-Release—The outer housing of the release bearing assembly. Usually made of cast iron.

3.4 Bearing Travel—The movement distance of the release bearing, actuated by the clutch pedal and linkage system. Includes release travel and additional travel to actuate the transmission brake, where furnished.

3.5 Bearing Load—The amount of force required to hold the release bearing at a given position. This may also be shown as a curve showing load from engaged to full release position.

3.6 Bolt Circle—The nominal diameter of the bolt circle in the engine flywheel of the clutch cover mounting bolts to the engine flywheel.

3.7 Bolt Piloted Cover Assembly—This is the cover assembly that requires special body fit bolts to mount and position it to the flywheel. This body bolt fits snugly into the clutch cover mounting holes and enters specially machined counterbores in the engine flywheel.

3.8 Brake Height—Distance from the flywheel friction surface to the clutch brake friction surface of the clutch bearing carrier. Term is normally used for manufacturing purposes.

3.9 Brake-Torque Limiting—A clutch break that limits amount of torque applied to the input shaft.

3.10 Clutch Brake—A device located between the rear of the clutch release bearing housing and the transmission bearing cap. Used to stop the transmission input shaft to facilitate shifting the transmission into first and reverse.

3.11 Clutch Cover—A cast or stamped metal component that may attach directly to the engine flywheel or adapter ring. The pressure plate and other components are added to it to make the clutch cover assembly.

3.12 Clutch Cover Assembly—Contains the clutch cover, pressure plate, pressure springs, and other internal parts. It may include an adjusting ring and the release bearing. It does not include the clutch brake, driven discs, intermediate plate, or adapter ring. The aftermarket industry often refers to this as the pressure plate assembly.

3.13 Clutch Housing—Usually bolts between the engine flywheel housing and the transmission case. This housing encloses the clutch assembly and usually supports the cross shaft and release yoke or fork. Generally it has an opening in the bottom for adjusting the clutch. The opening is usually covered by a sheet metal cover at a joining surface that is not water tight. This housing is normally supplied as part of the transmission and may include provisions for the rear engine mount, often referred to as nodal mounts. In some instances, it may be an inter-

gral part of the transmission case. It is sometimes called the bell housing.

3.14 Cross Shaft—One or two shafts supporting the release yoke. Mounted in the clutch housing. Single shaft referred to as a through shaft, double shaft referred to as a split shaft. Also called release shaft.

3.15 Drive Lugs—Projections or ears extending from the OD of the two plate clutch intermediate plate. These lugs are used to drive the intermediate plate and fit into openings of the cast clutch covers or adapter rings. Drive lugs are generally used on intermediate plates with flat type engine flywheels.

3.16 Drive Pins—A steel device used with pot type engine flywheels and a two plate clutch. They attach to the flywheel and are used to drive the clutch intermediate plate which has slots machined into its outer diameter.

3.17 Driven Disc—A disc splined to the transmission shaft, and with friction material mounted on both faces. It is used to transmit load by friction coupling the pressure plate to the flywheel (1-plate clutch), or to the intermediate plate and the latter to the flywheel (2-plate clutch). Three types are available as:

3.17.1 DAMPED DISC—Has vibration isolator springs which allow limited rotational movement between the disc hub and friction material. This helps to eliminate torsional vibrations and/or shock loads from being transmitted from the engine to the transmission or shock loads from being transmitted from the driveline to the engine when the vehicle may be operating on rough roads.

3.17.2 RIGID DISC—Different from the above by having the disc hub mounted solid to the friction material support, permitting no rotational movement between the disc hub and friction materials.

3.17.3 CUSHIONED DISC—Usually a spring steel segmented backing for the friction material, designed to conform to irregularities of the mating surfaces and to reduce engagement aggressiveness. May be used on both damped and rigid discs.

3.18 Flywheel—A round metallic member, attached to the engine crankshaft, used as the friction surface for the clutch driven disc and as an attachment surface for the clutch cover assembly which may be bolted directly to it or through an intermediate adapter ring. It also supports the pilot bearing. Flywheels are often defined as a pot-type or flat-type depending on the types of clutches used with them.

3.19 Flywheel Housing—It surrounds the flywheel and serves as an adapter between the rear of the engine and the clutch housing. The clutch housing pilots into the flywheel housing for close concentricity and squareness. The flywheel housing is generally supplied as a part of the engine and may include provisions for rear engine mounts or pads for installing rear engine supports.

3.20 Free Pack Thickness—The thickness of the driven discs and intermediate plate or plates with no compressing force applied. With pressure applied to compress disc cushions, this measurement is called the pack disc thickness.

3.21 Free Pedal—Sometimes called free travel. The amount of movement in the clutch pedal from its highest position to the point at which the release fork or yoke contacts the release bearing housing and the clutch begins to release.

3.22 Intermediate Plate—Often referred to as a center plate, it is used in multidriven disc clutches. It is driven by the clutch cover, engine flywheel, or intermediate adapter ring and is free to float axially. This plate is generally made of cast iron and provides friction surfaces