

# SURFACE VEHICLE RECOMMENDED PRACTICE

Submitted for recognition as an American National Standard

**SAE** J1952

Issued 1991-01-08

## ALL WHEEL DRIVE SYSTEMS CLASSIFICATION

**1. Scope**—In this SAE Recommended Practice attention will be given to passenger cars and light trucks (through Class III).

**1.1 Purpose**—Figures 1 to 4 and the definitions are intended to outline basic nomenclature and to categorize all wheel drive concepts. The goal is to give those working in the field a common base for discussion regarding the type of all wheel drive systems independent of marketing terminology.

### 2. References

2.1 There are no referenced publications specified herein.

### 2.2 Definitions

2.2.1 ALL WHEEL DRIVE—A vehicle drive system with the ability to drive all wheels.

2.2.2 MANUALLY CONTROLLED—The transition between two wheel drive and all wheel drive is accomplished through operator activation.

2.2.3 AUTOMATICALLY CONTROLLED—The transition between two wheel drive and all wheel drive does not require operator interaction.

2.2.4 PERMANENT—The system is permanently in the all wheel drive mode.

2.2.5 AWD SYNCHRONIZATION—The act of bringing two or more torque carrying members to the same speed to engage all wheel drive while the vehicle is in motion.

2.2.6 SPEED DIFFERENTIATION—A permitted difference in speed between two or more driven members.

2.2.7 FIXED TORQUE DISTRIBUTION—Output torque distribution is fixed by the design of the device.

2.2.8 VARIABLE TORQUE DISTRIBUTION—Output torque distribution is variable by the design of the device.

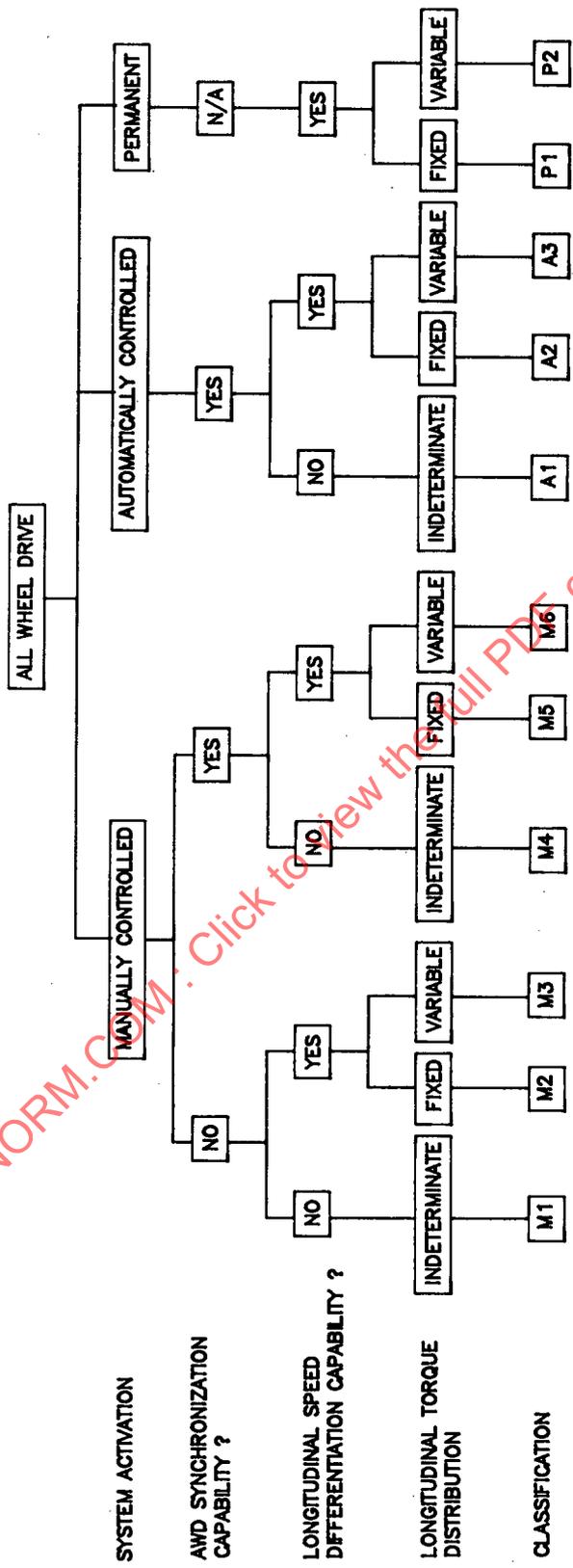
2.2.9 INDETERMINATE TORQUE DISTRIBUTION—Output torque distribution is not determined by the device but by the input torque and tractive capability.

2.2.10 CLASSIFICATION—The alphanumeric reference, obtained by answering the questions on the following diagram, which indicates the ability of the evaluated design.

PREPARED BY THE SAE ALL WHEEL DRIVETRAIN STANDARDS COMMITTEE

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FIGURE 1—ALL WHEEL DRIVE SYSTEMS CLASSIFICATION DIAGRAM

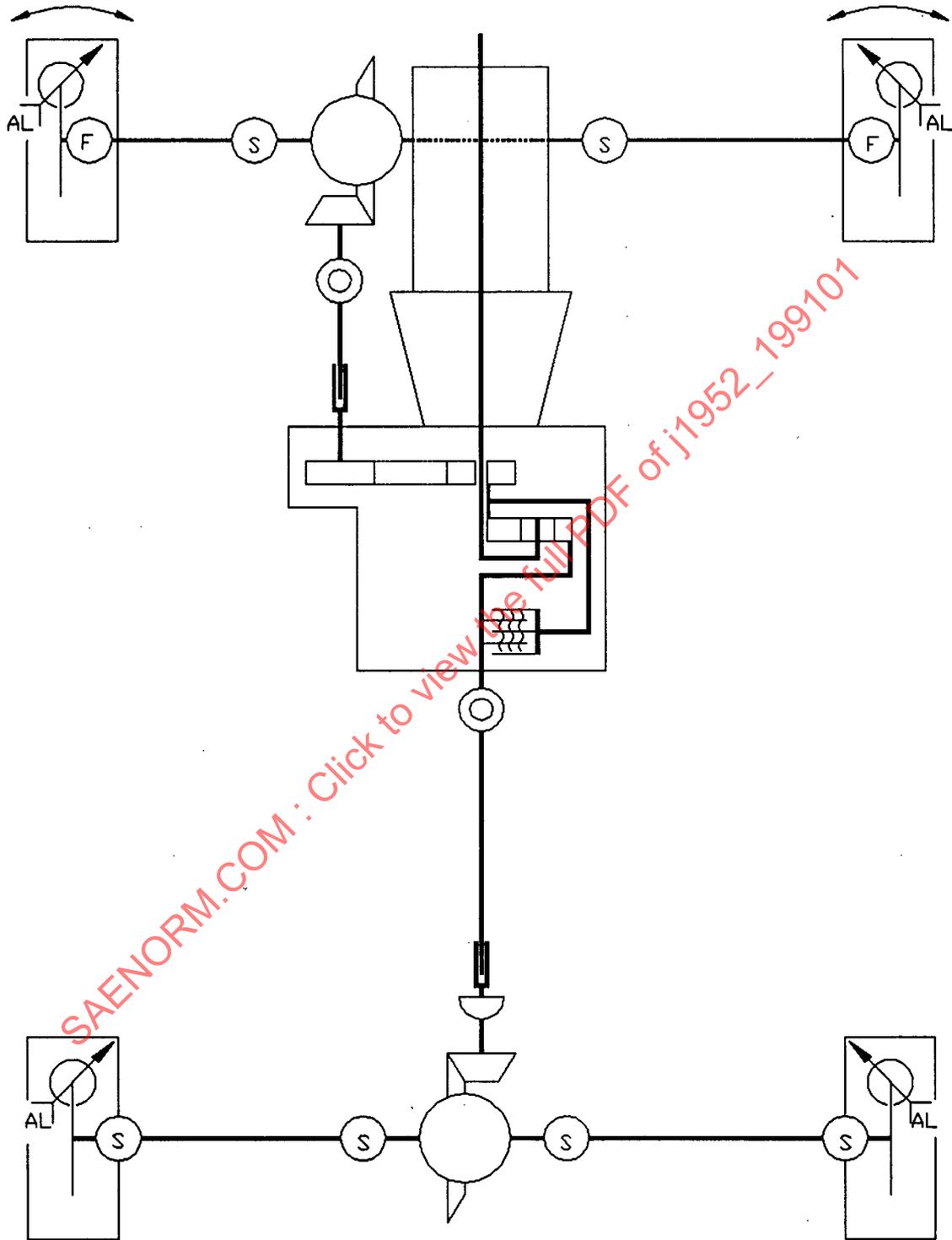


FIGURE 2—CLASS P2 ALL WHEEL DRIVE VEHICLE

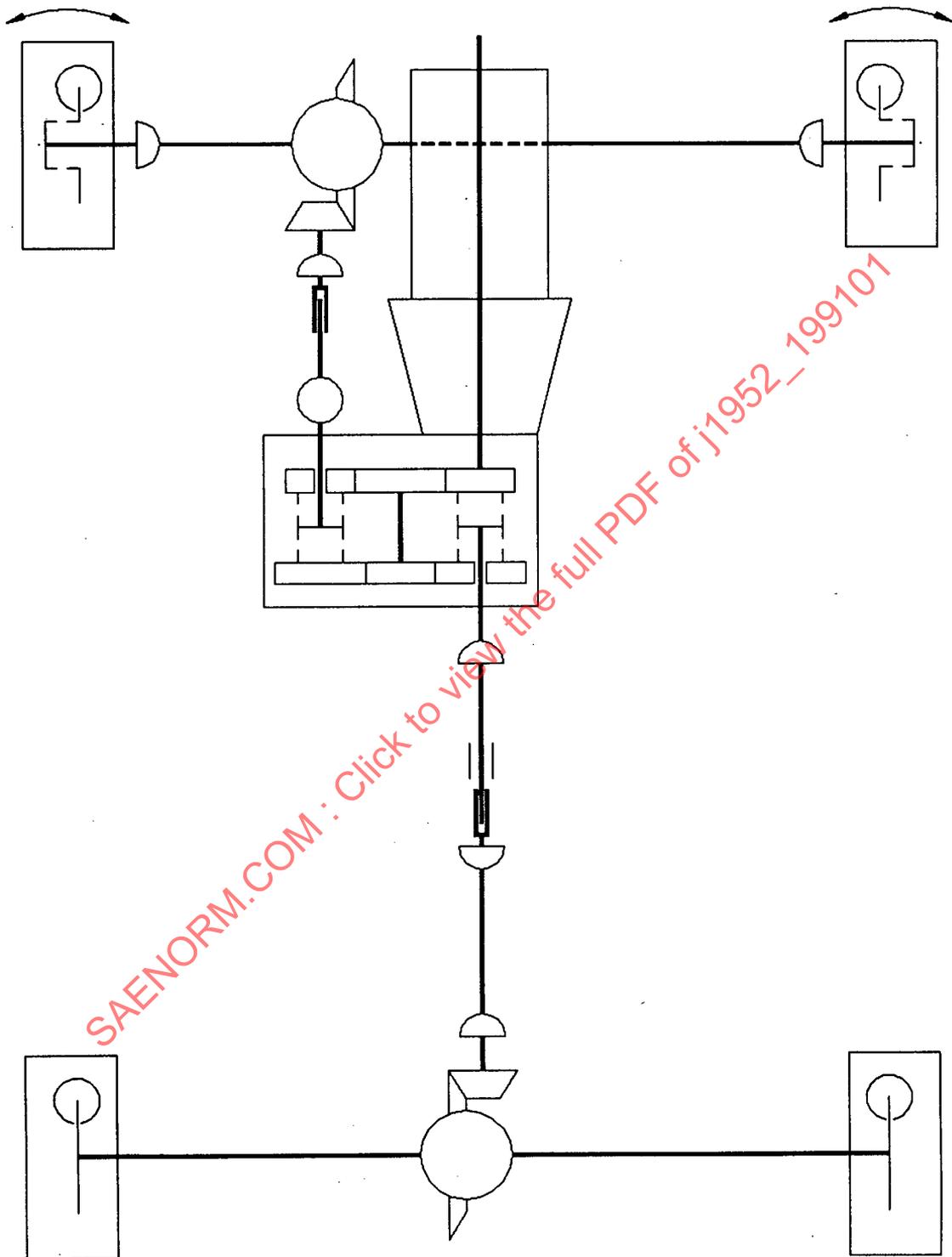


FIGURE 3—CLASS M4 ALL WHEEL DRIVE VEHICLE