

KES

The Determination Method of Drive Shaft Geometry

KES M – K001

(EST.) 1989 – 05 – 03

Contents

1. Scope of Application
2. Purpose
3. Meanings of terminology
4. Design materials
5. Design investigation procedure

1. Scope of Application

This standard shall be applied to CV joint(hereinafter referred as joint) of a car with front suspension of Mcperson type.

2. Purpose

This standard shall be for regulating standard of geometry investigation as suspension and steering motion of drive shaft CV joint used in a car.

3. Meanings of Terminology

3.1 Outer joint

Fixing type joint tied up to wheel side, generally labeled as BJ.

Fixing condition is displayed on Figure 1.

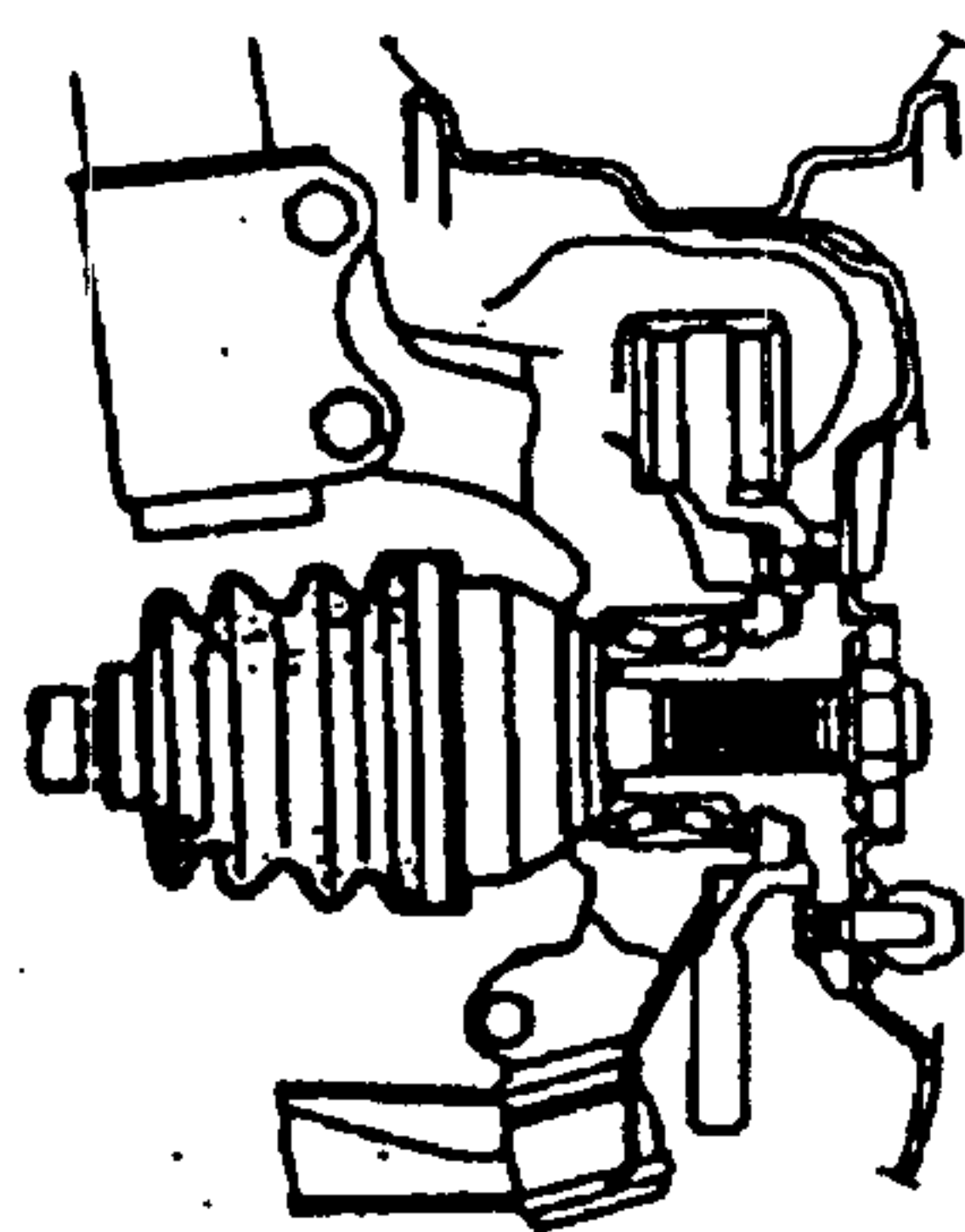


Figure 1. Fixing condition of joint

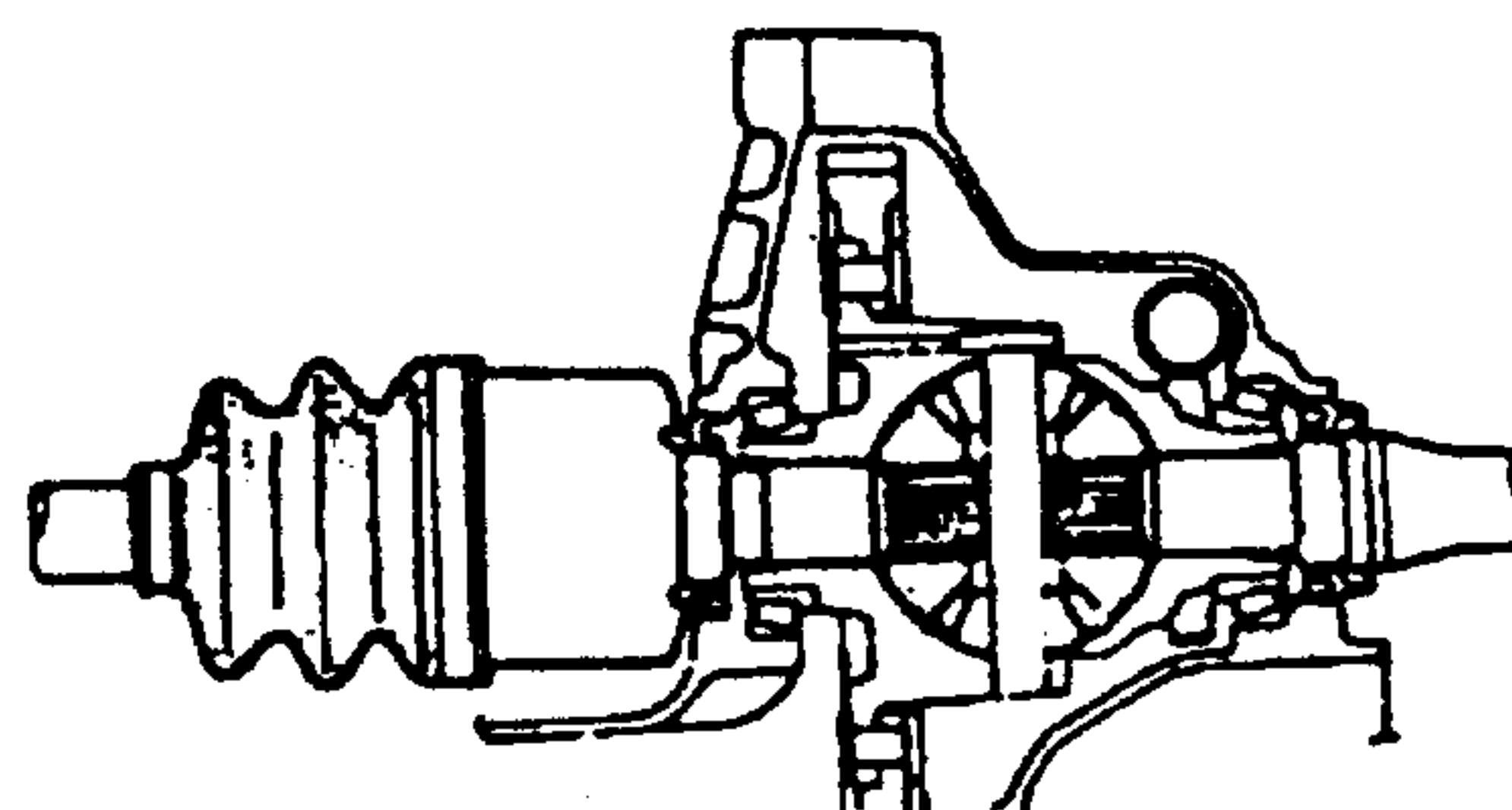


Figure 2. Fixing condition of joint

3.2 Inner joint

Slide type joint fixed to differential gear side, generally labeled as DOJ, TJ, CGJ or TSJ.

Fixing condition is displayed on Figure 2.

3.3 Break angle

An acute angle between rotating axis of joint housing and centerline of shaft.

Generally labeled as Joint angle. Break angle of θ is displayed on Figure 3.

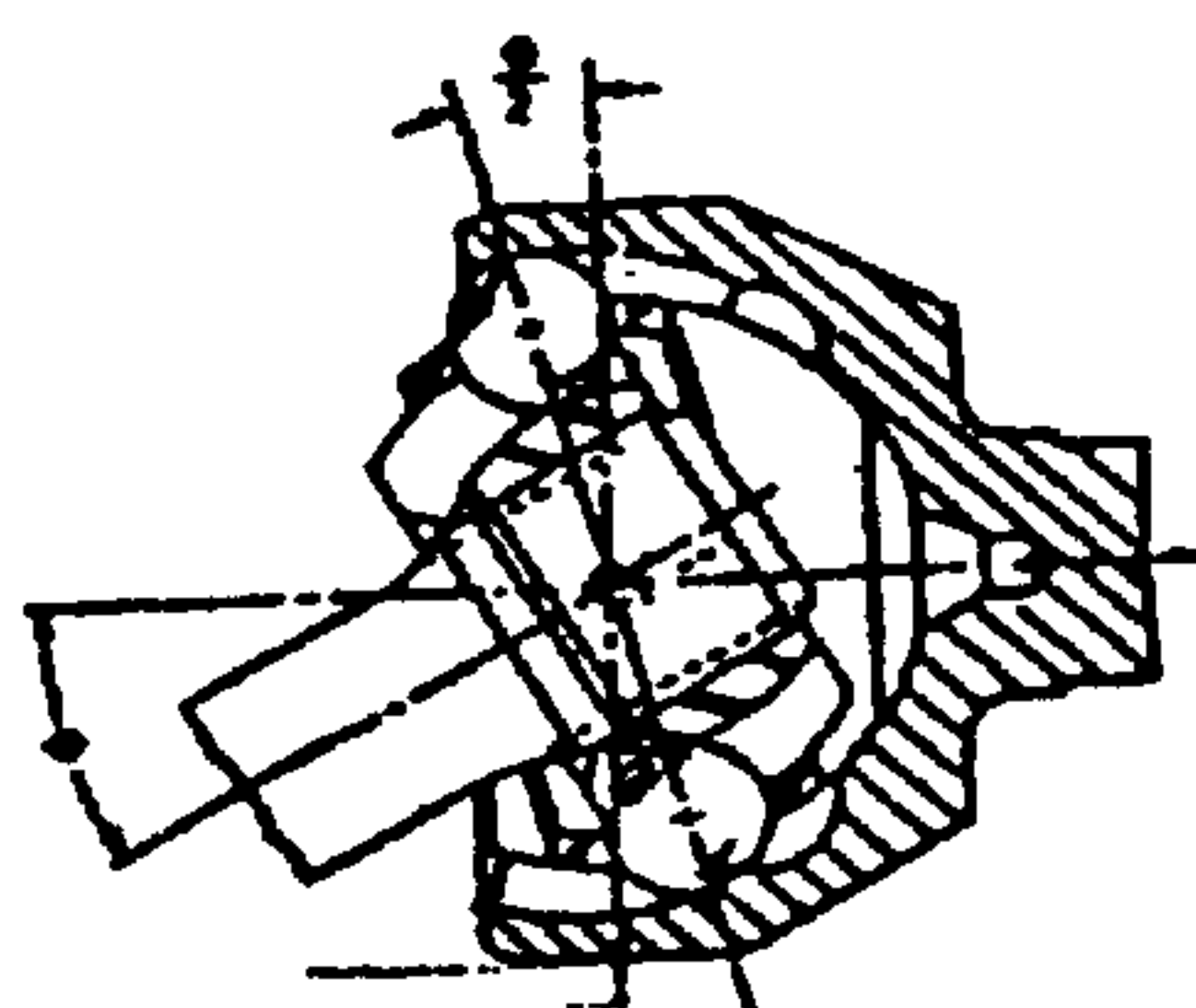


Figure 3. Break angle of θ

3.4 Center of joint

An intersecting point of rotating axis of joint housing and constant velocity surface of joint.

3.5 Slide diagram

A diagram indicating slide needed for inner joint with relation between break angle and slide.

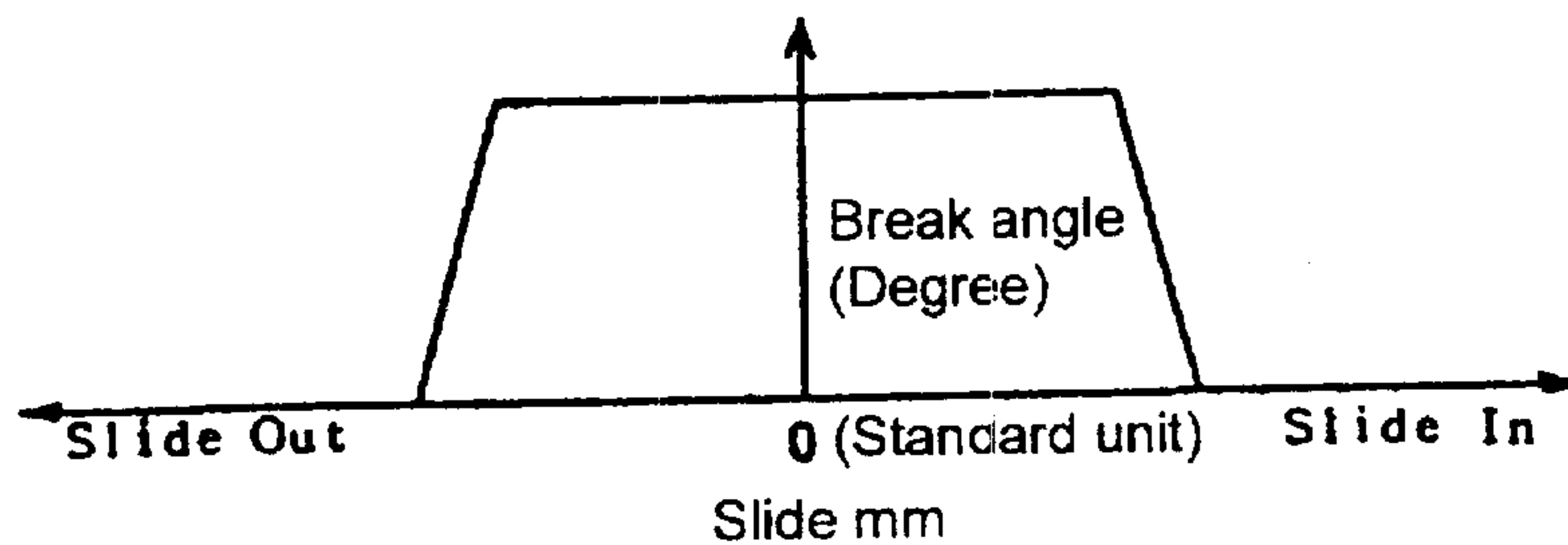


Figure 4. Slide diagram

3.6 Wheel movement

3.6.1 Design load

This is standard load condition when drawing up the basic layout of a car, and generally determined for 2 or 4 people.

3.6.2 Jounce(Or full bump)

The condition that wheel reaches the highest position by action of suspension.

3.6.3 Full rebound

The condition that wheel reaches the lowest position by action of suspension.

3.6.4 Steer

Phenomena that a car is curved to left or right by steering wheel when a car turns round, classified as straight, RH steer and LH steer.

3.3 Instruments and devices

(1) Devices regulated on (2) ~ (6) of instruments and devices of ECE mode exhaust test method

(2) Fuel flow meter

This instrument shall be able to measure incoming fuel flow rate with $\pm 2\%$ of accuracy.

And fuel consumption of engine shall not be affected by this instrument.

(a) In case of volumetric flow meter type, fuel temperature shall be measured at the point of fuel flow rate measurement.

(b) Conversion valve system of fuel flow passed through this flow meter shall be equipped and time required for conversion shall be less than 0.2 second.

4. Design Materials

4.1 Computational program

4.1.1 Kia Program Library(Used with host connection)

File name { C21010 MH DATA
C21010 MH OUT

4.1.2 Mcpherson Sus Program(used with PC)

File name { Mcphsus. Dat
Mcphsus. Out

4.2 KES D-B001(Drive shaft)

5. Design Investigation Procedure

5.1 Determination of drive line lay out

Determine lay out type; non-equidistant type or equidistant type.

Recently equidistant type is mainly selected for FF type deluxe car more than 1.8L.

5.1.1 Estimation items

- Engine displacement
- NVH
- Comparance with competitive cars of the same class
- Weight
- Car lay out
- Development result
- Cost

5.1.2 The case that equidistant type shall be selected

- (1) M company of Japan applied equidistant type drive line to cars with more than 1.8ℓ of E/G displacement.
- (2) In case that torque steer is expected on the basis of development result
- (3) In case that NVH shall be considered specially.

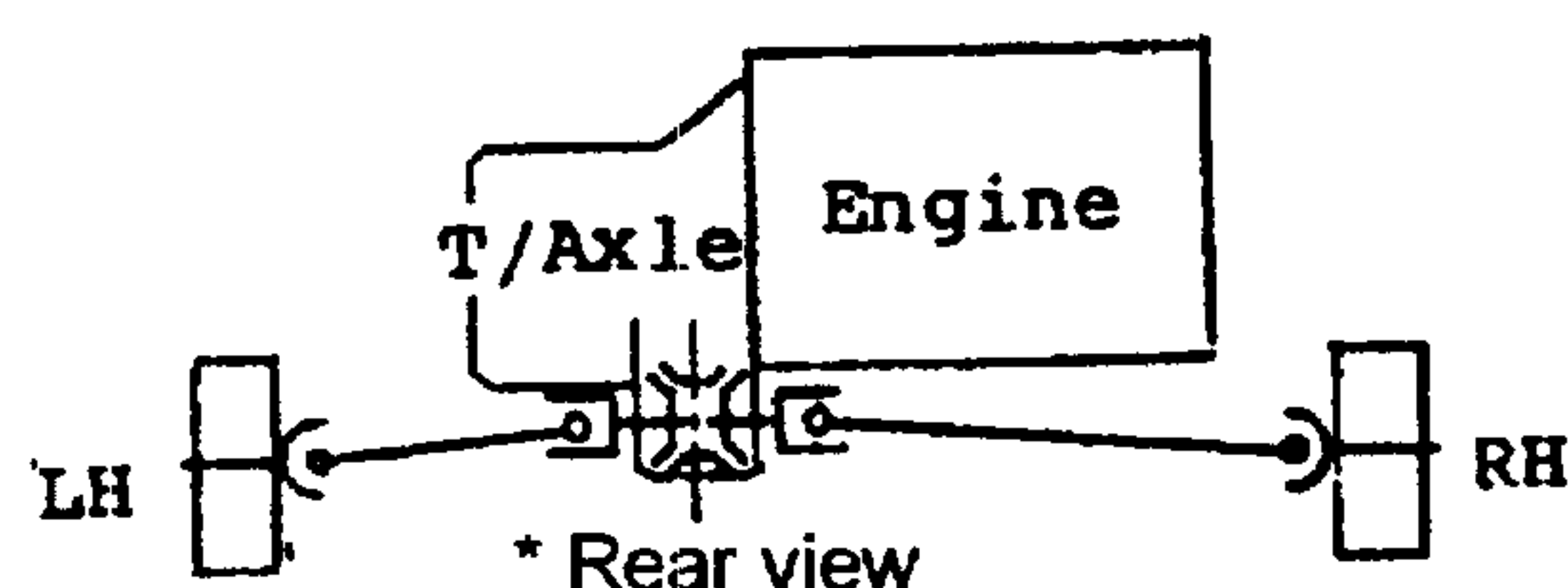


Figure 5. Non-equidistant type lay out

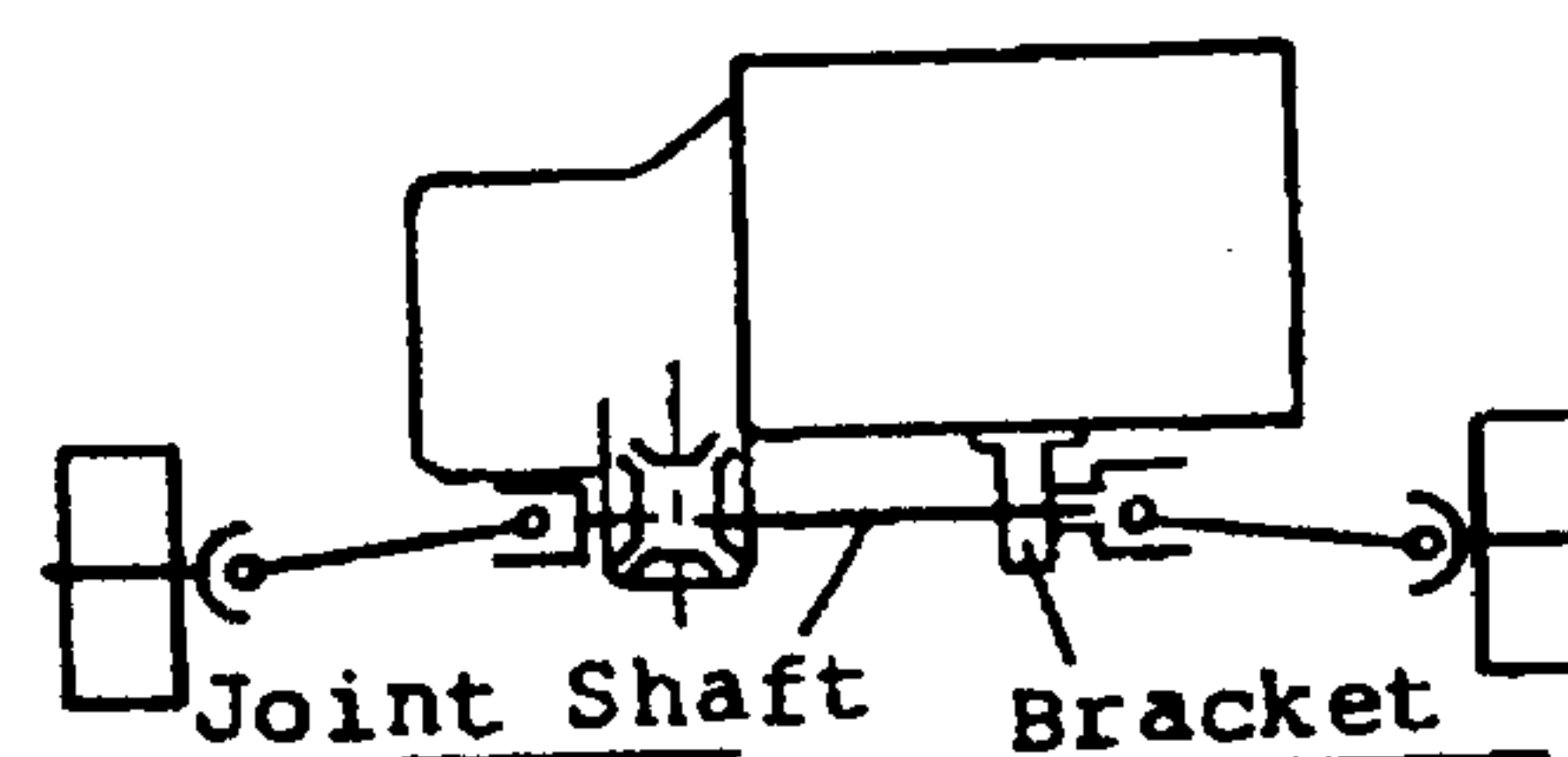


Figure 6. Equidistant type lay out