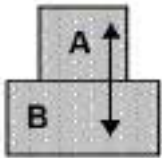


Crackling from the speaker

**Definition:**



Crackling: quick alternating impact between two components.

Sunroof:

**Sunroof chattering:** jerky movement of mobile panel when opening/closing (vertical movement of the panel while moving longitudinally)

# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

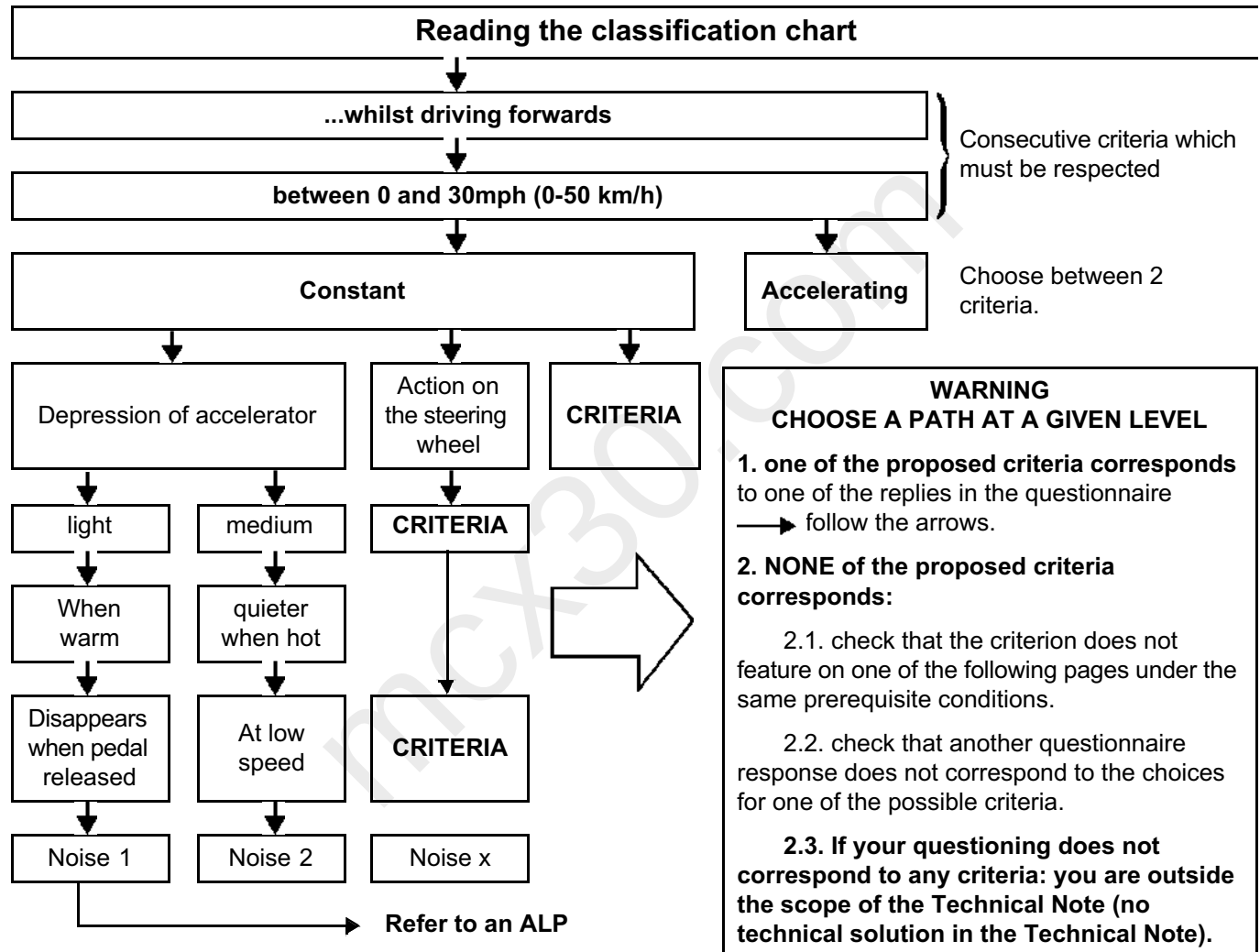
01E

### 6.2. CAUSE OF NOISE CLASSIFICATION CHART

#### WARNING

The Customer Complaint Classification Chart is used to identify the cause of a noise which has been detected by the customer. A Classification Chart is selected using a questionnaire which lists the different conditions under which the noise appears.

Only the **most common conditions** under which the noise occurs are listed in the classification chart. It is important to correctly identify with the customer **the main condition** under which the noise appears.



# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

### CONDITIONS UNDER WHICH THE NOISE APPEARS

The noise is detected:

|                                                                                                            |                                                 |
|------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| whilst driving forwards between 0 and 30 mph (0-50 km/h) and the noise depends on the road surface         | conditions under which the noise appears no. 1  |
| whilst driving forwards between 0 and 30 mph (0-50 km/h) and the noise does not depend on the road surface | conditions under which the noise appears no. 2  |
| whilst driving forwards between 30 and 54 mph (50 and 90 km/h)                                             | conditions under which the noise appears no. 3  |
| whilst driving forwards between 54 and 78 mph (90 and 130 km/h)                                            | conditions under which the noise appears no. 4  |
| whilst driving forwards in a particular engine speed range                                                 | conditions under which the noise appears no. 5  |
| whilst driving forwards when the accelerator is depressed in a particular manner                           | conditions under which the noise appears no. 6  |
| whilst driving forwards when the gear lever is manipulated in a particular manner                          | conditions under which the noise appears no. 7  |
| whilst driving forwards                                                                                    | conditions under which the noise appears no. 8  |
| Whilst reversing                                                                                           | conditions under which the noise appears no. 9  |
| starting                                                                                                   | conditions under which the noise appears no. 10 |
| whilst parking                                                                                             | conditions under which the noise appears no. 11 |
| when stationary, engine running                                                                            | conditions under which the noise appears no. 12 |
| when stationary, engine may or may not be running                                                          | conditions under which the noise appears no. 13 |
| vehicle stationary, engine not running or switching ignition on/off                                        | conditions under which the noise appears no. 14 |

# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

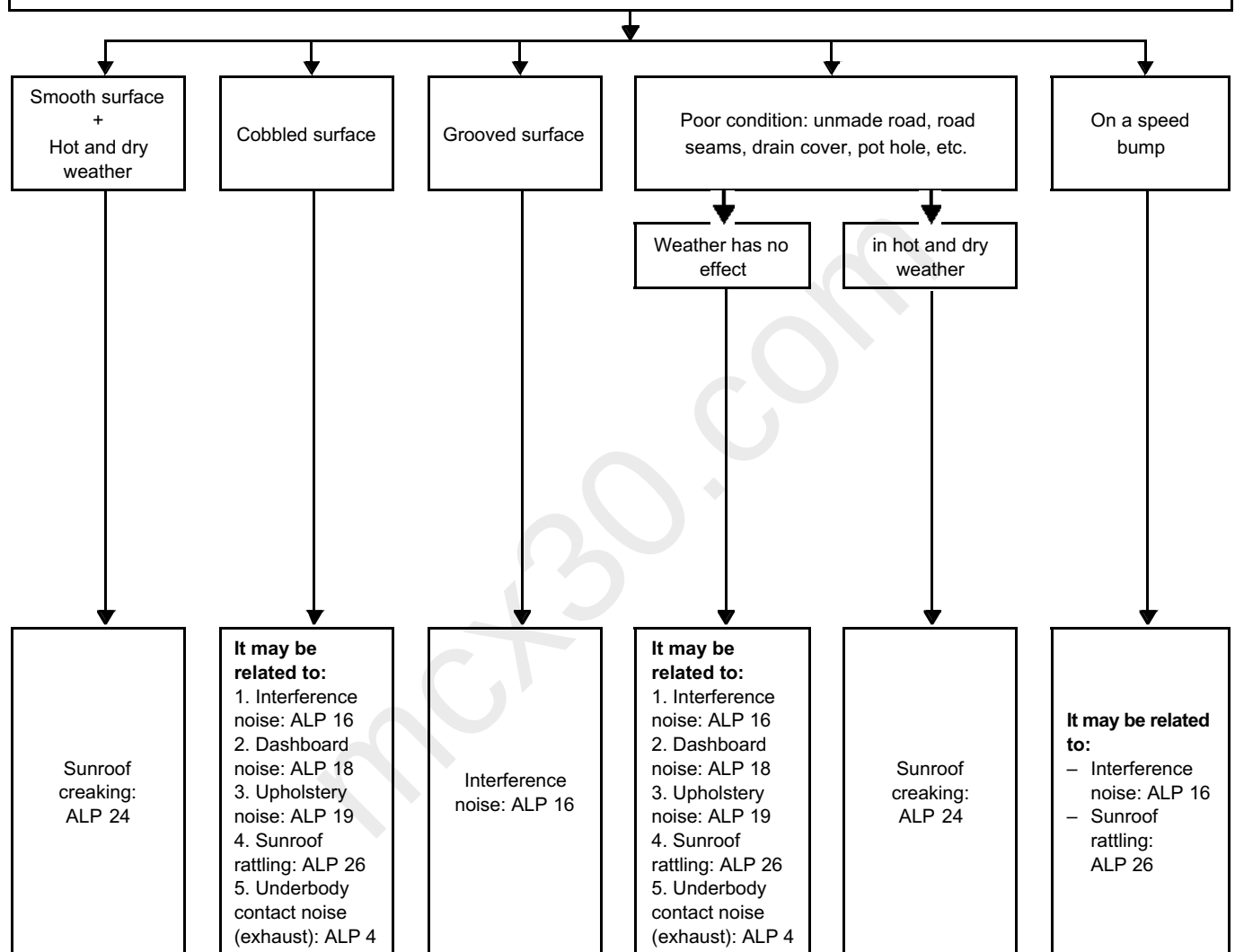
01E

Conditions under which the noise appears no. 1

The noise is detected...

... whilst driving forwards between 0 and 30 mph (0 and 50 km/h)

and the noise depends on the road surface



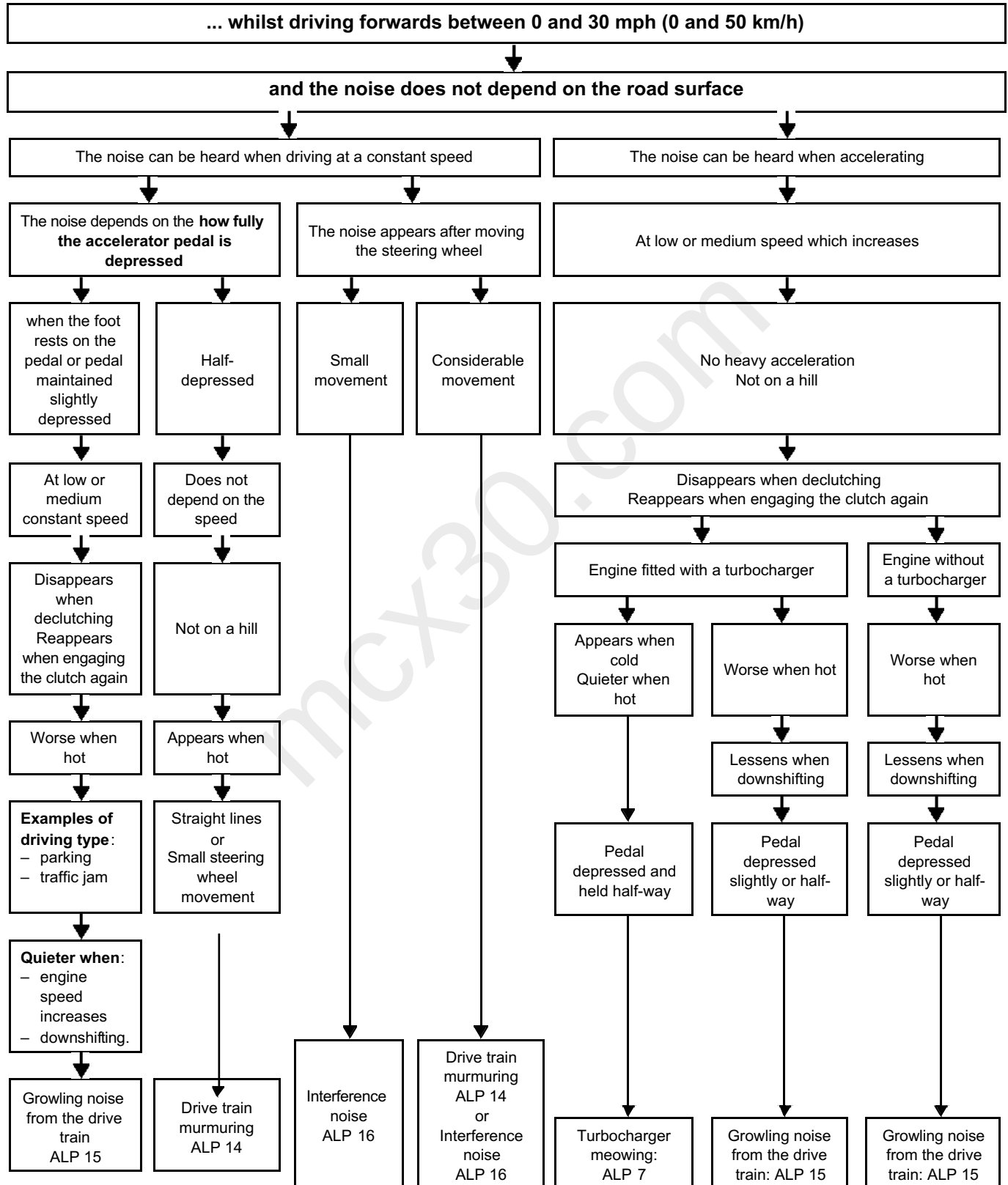
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 2

The noise is detected...



# FAULT FINDING INTRODUCTION

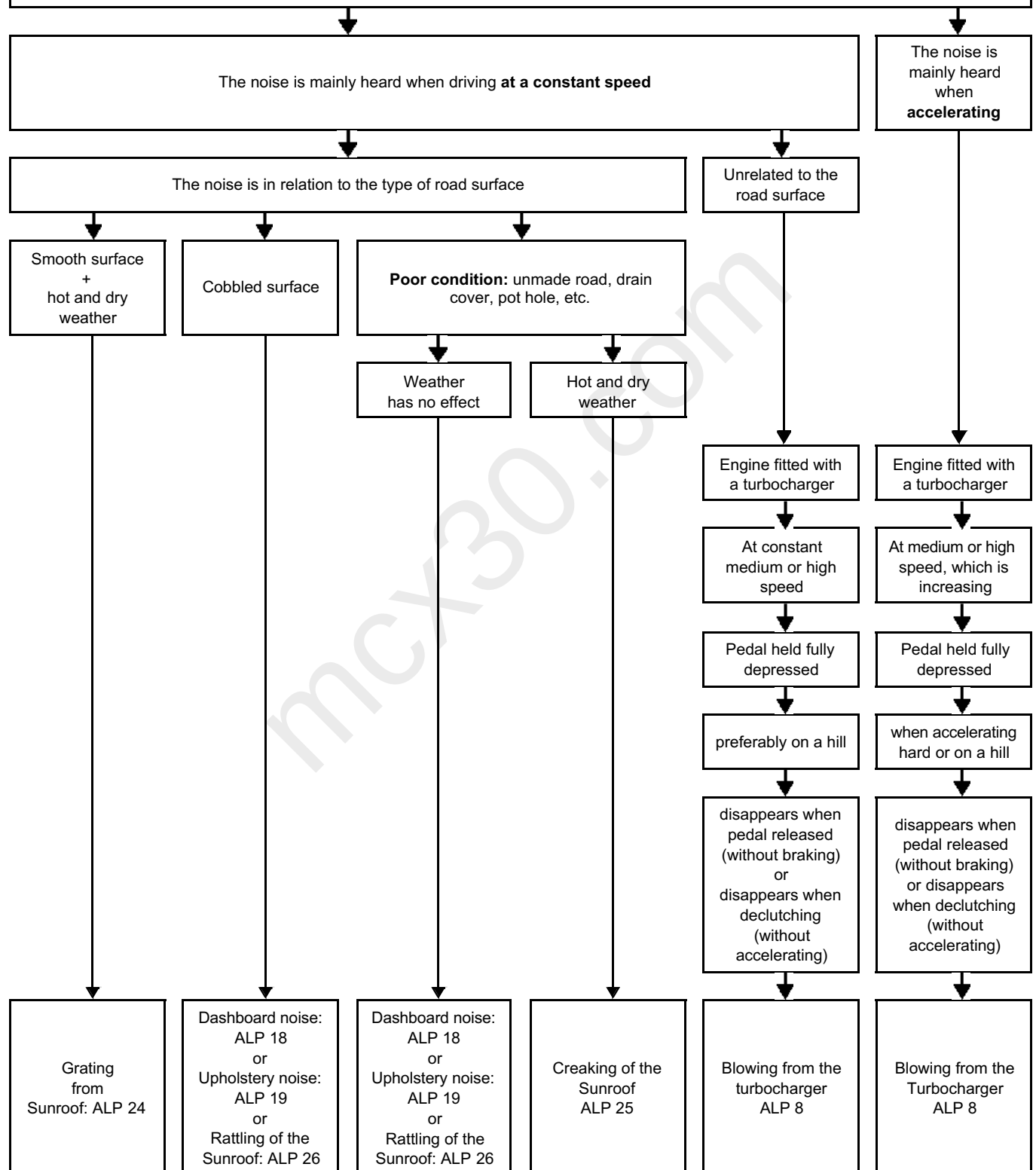
## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 3

The noise is detected...

... whilst driving forwards between 30 and 54 mph (50 and 90 km/h)



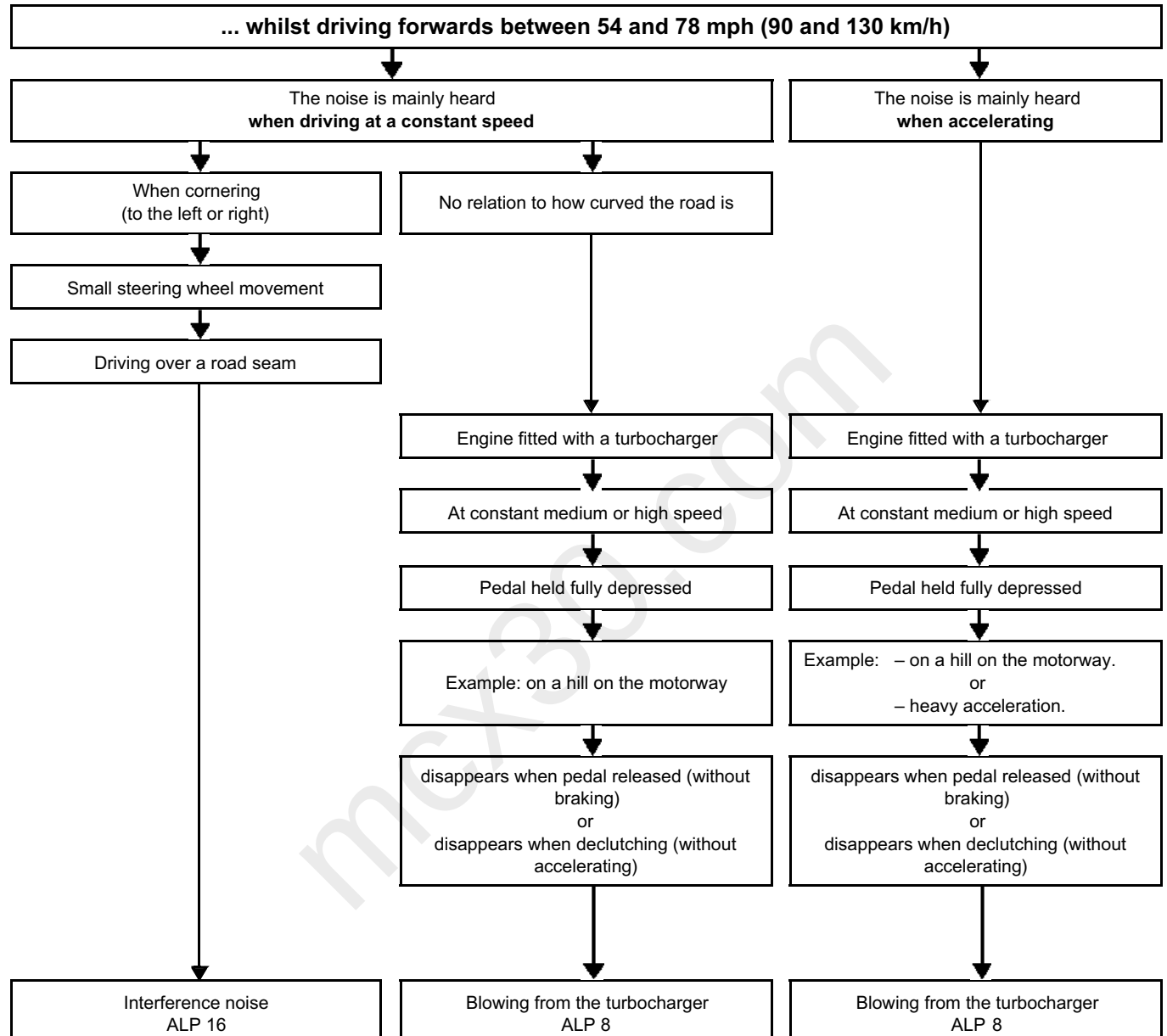
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 4

The noise is detected...



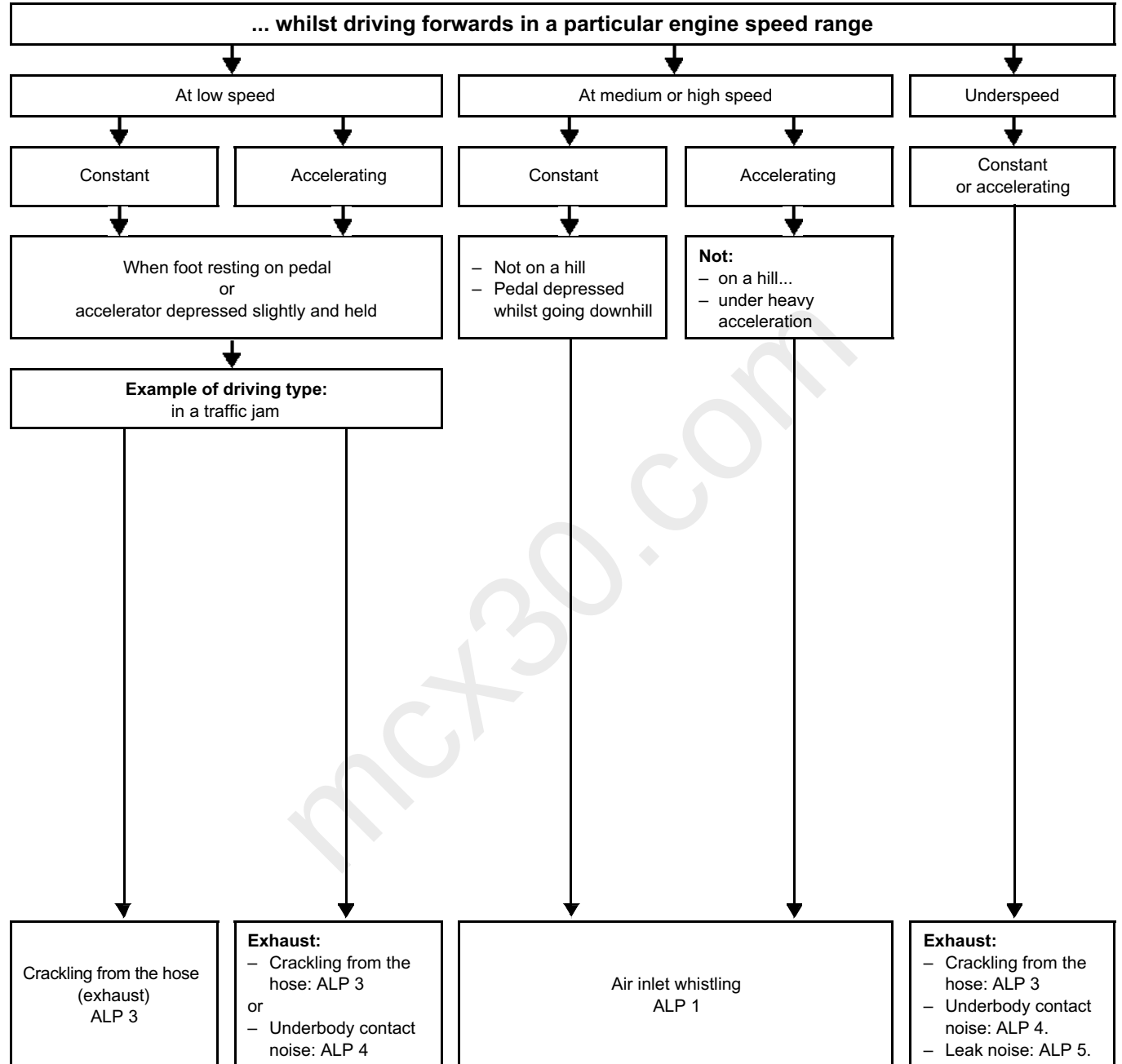
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 5

The noise is detected...



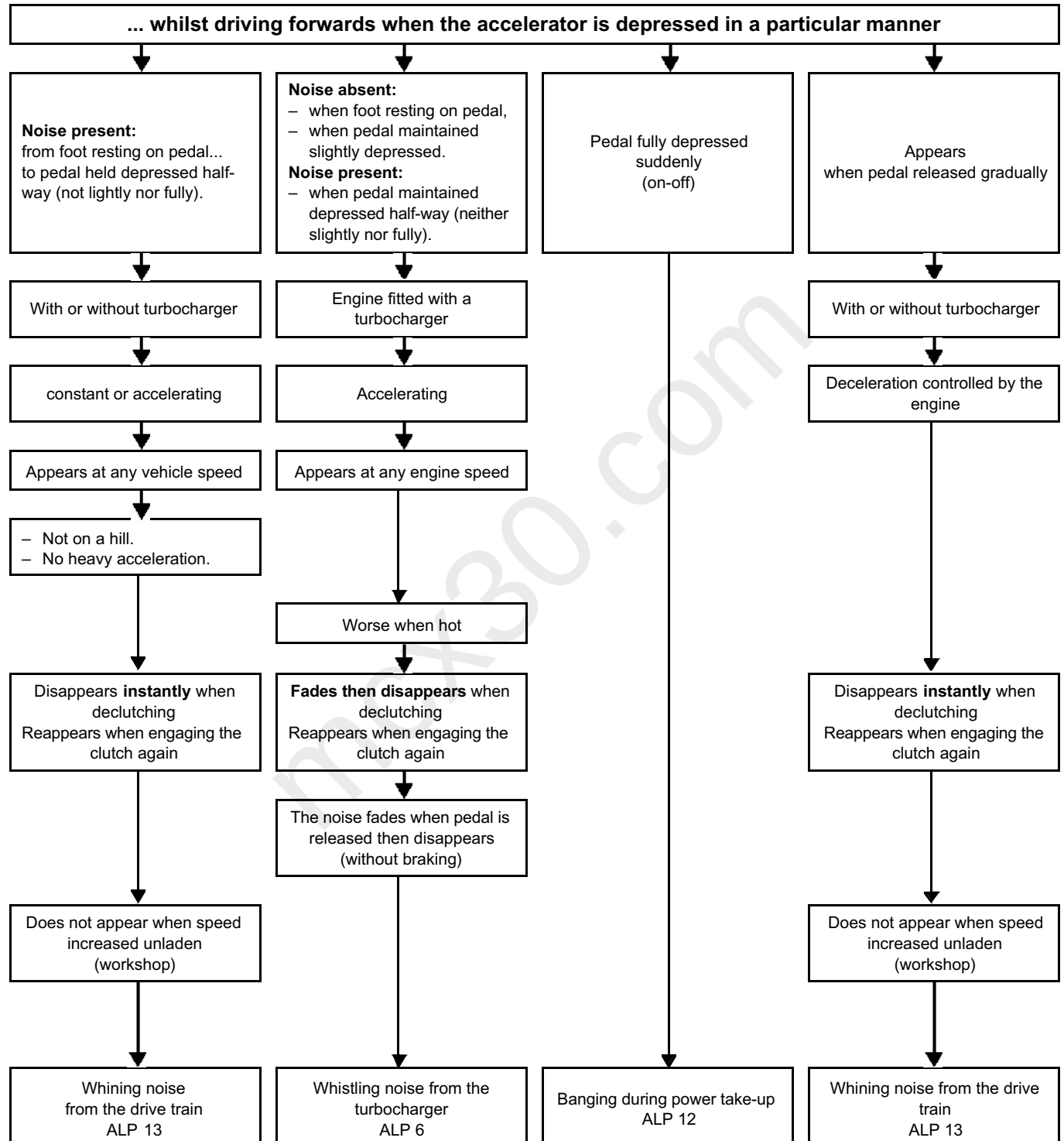
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 6

The noise is detected...



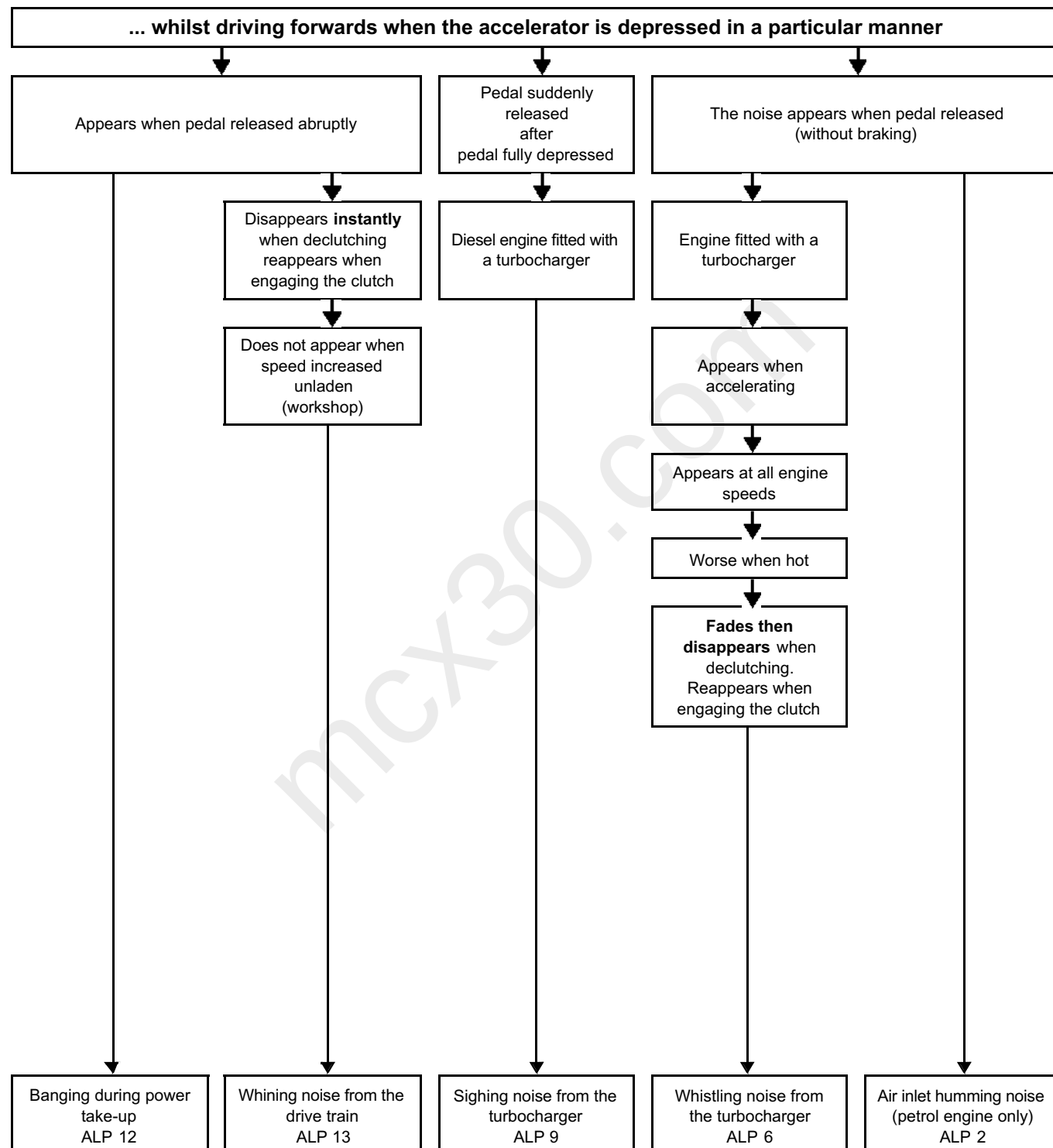
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 6 (continued)

The noise is detected...



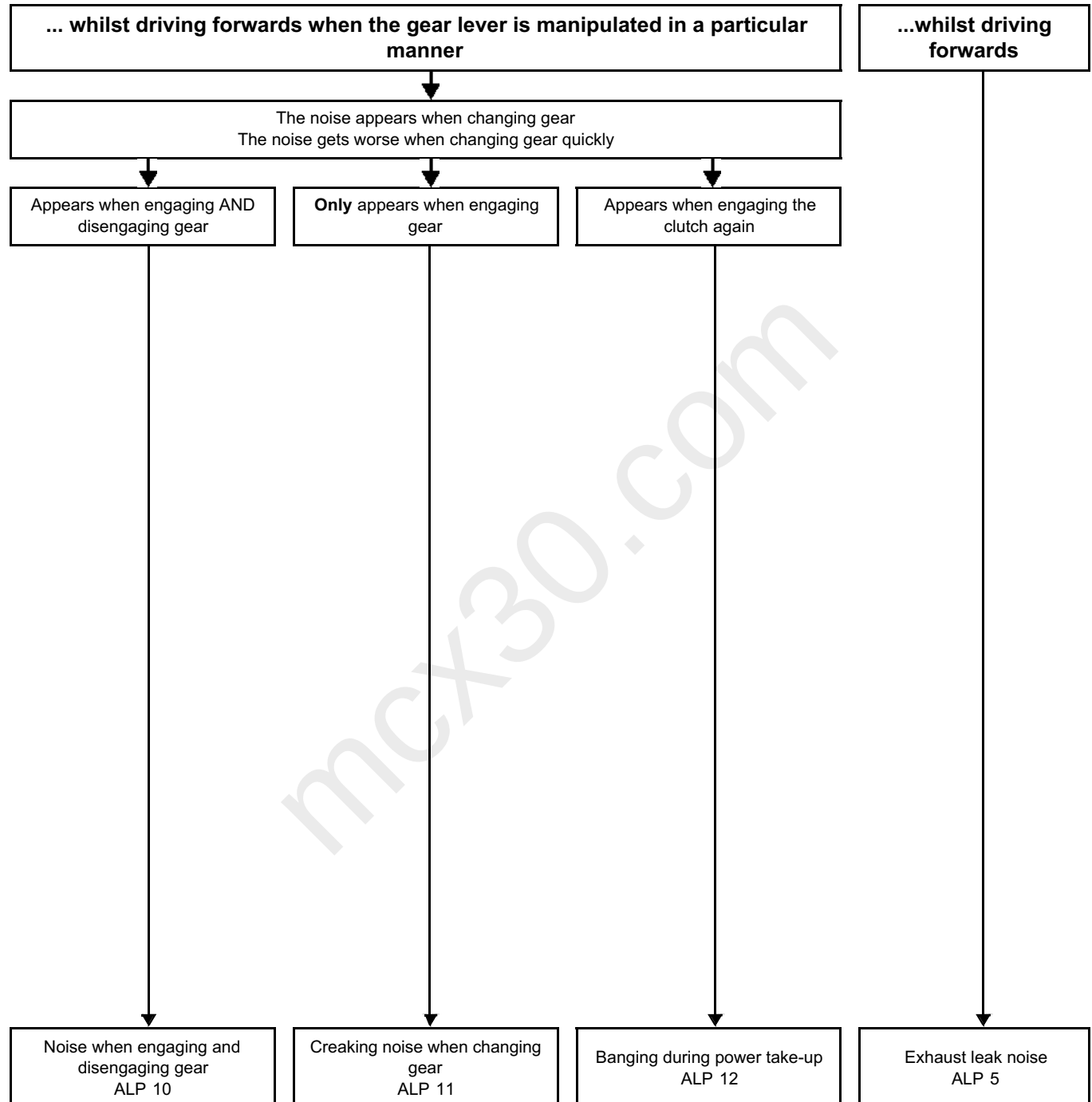
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears nos. 7 and 8

The noise is detected...



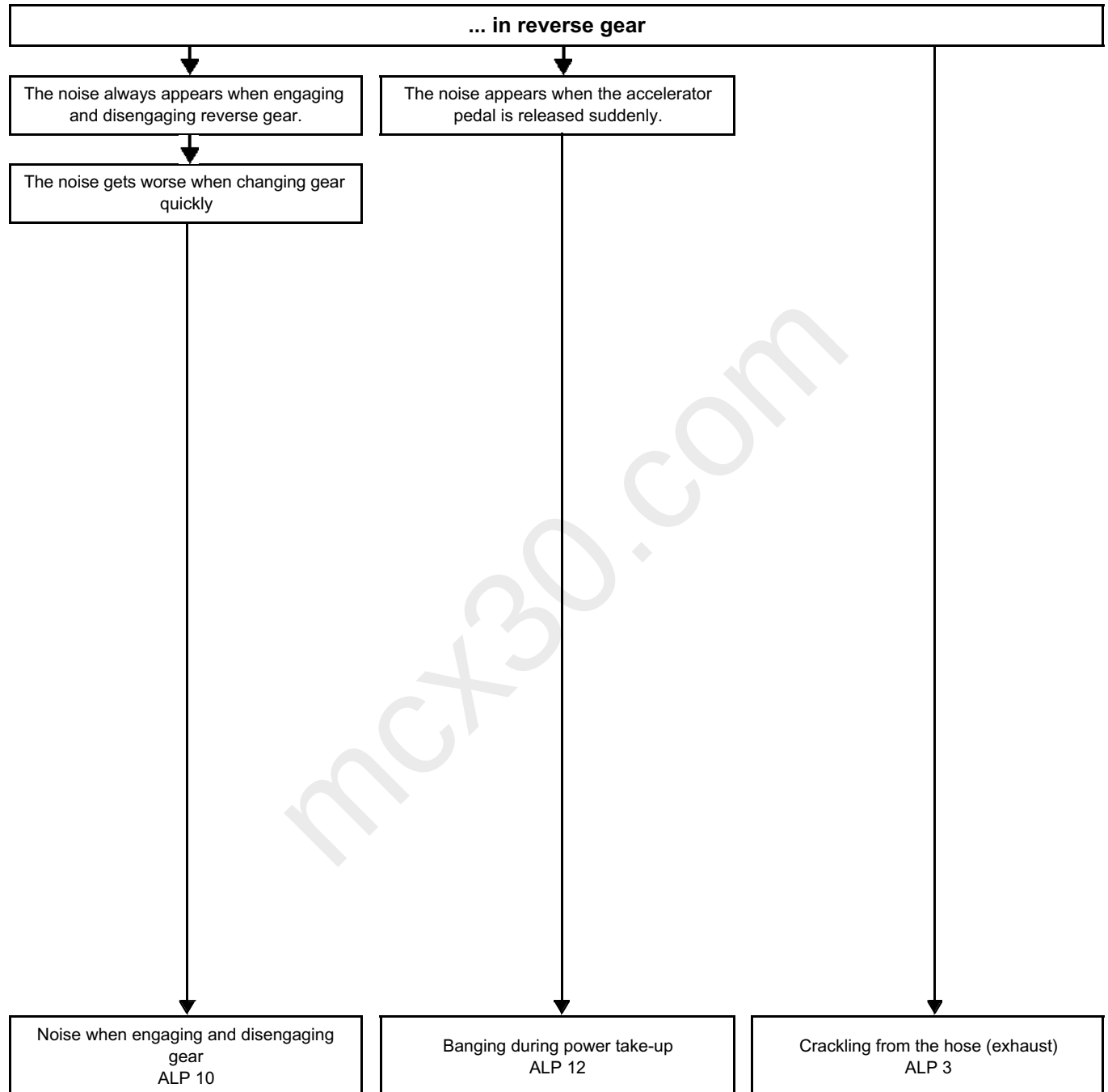
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 9

The noise is detected...



# FAULT FINDING INTRODUCTION

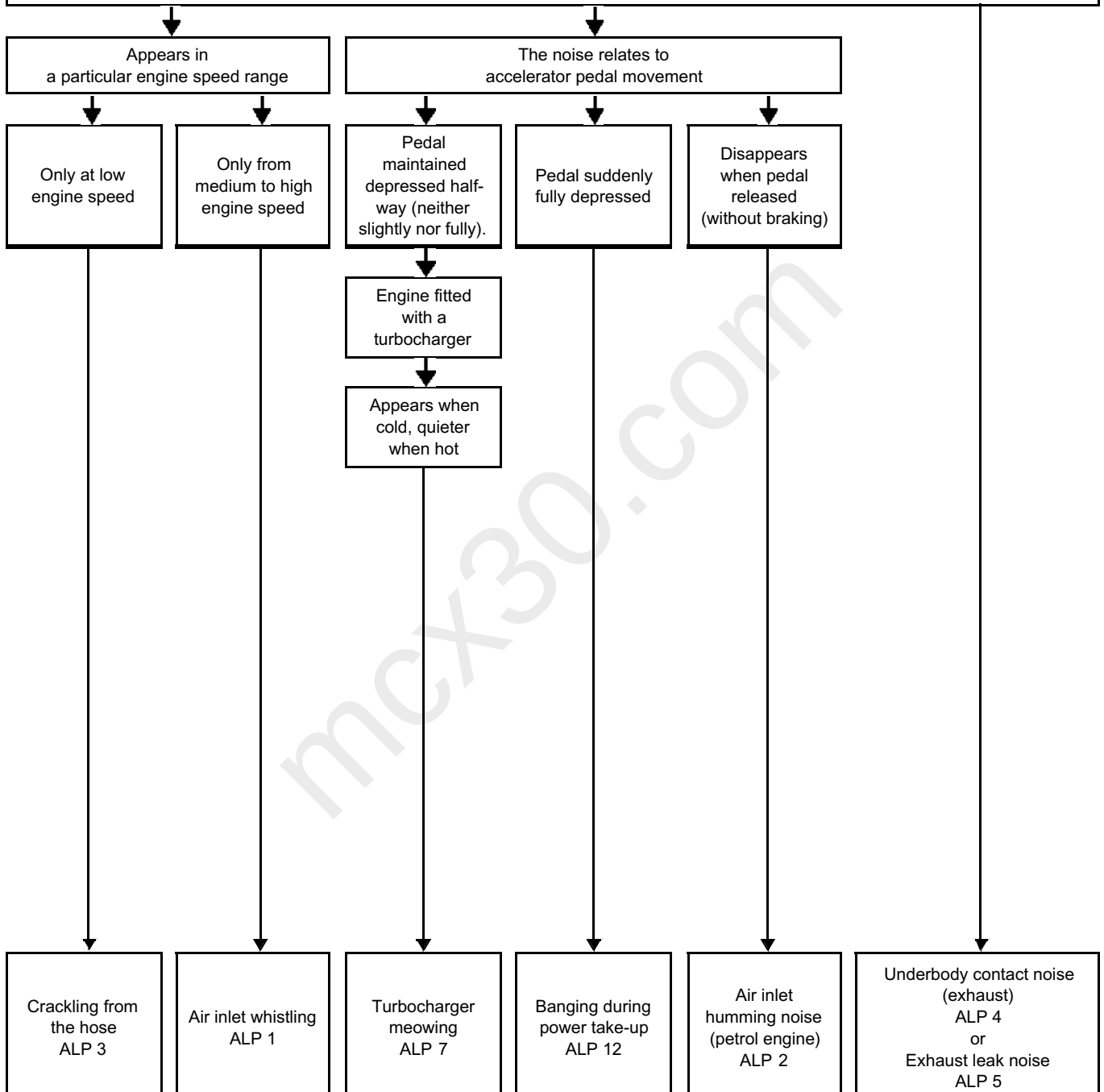
## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 10

The noise is detected...

... when starting (increased engine speed in 1<sup>st</sup> gear)



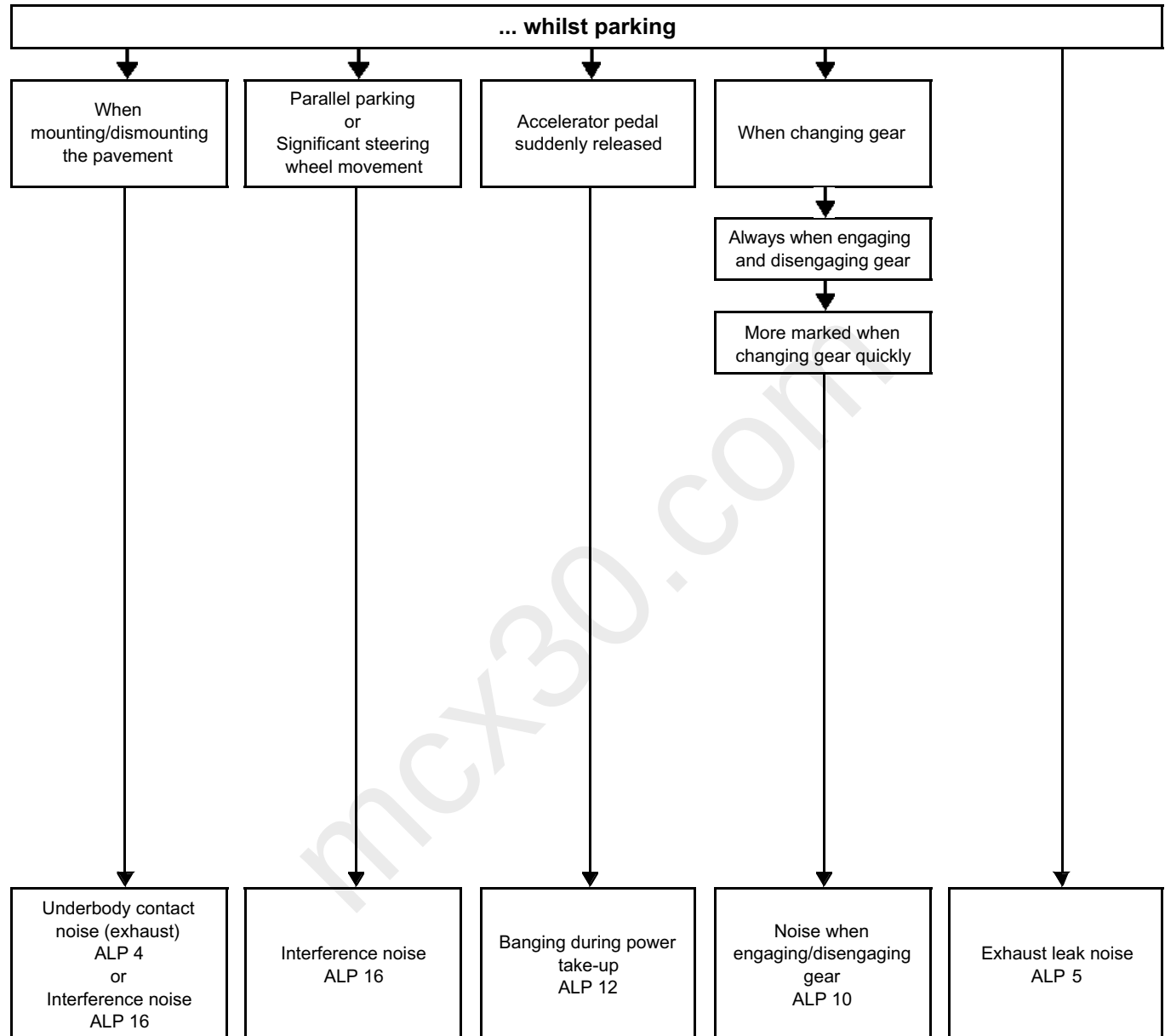
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 11

The noise is detected...



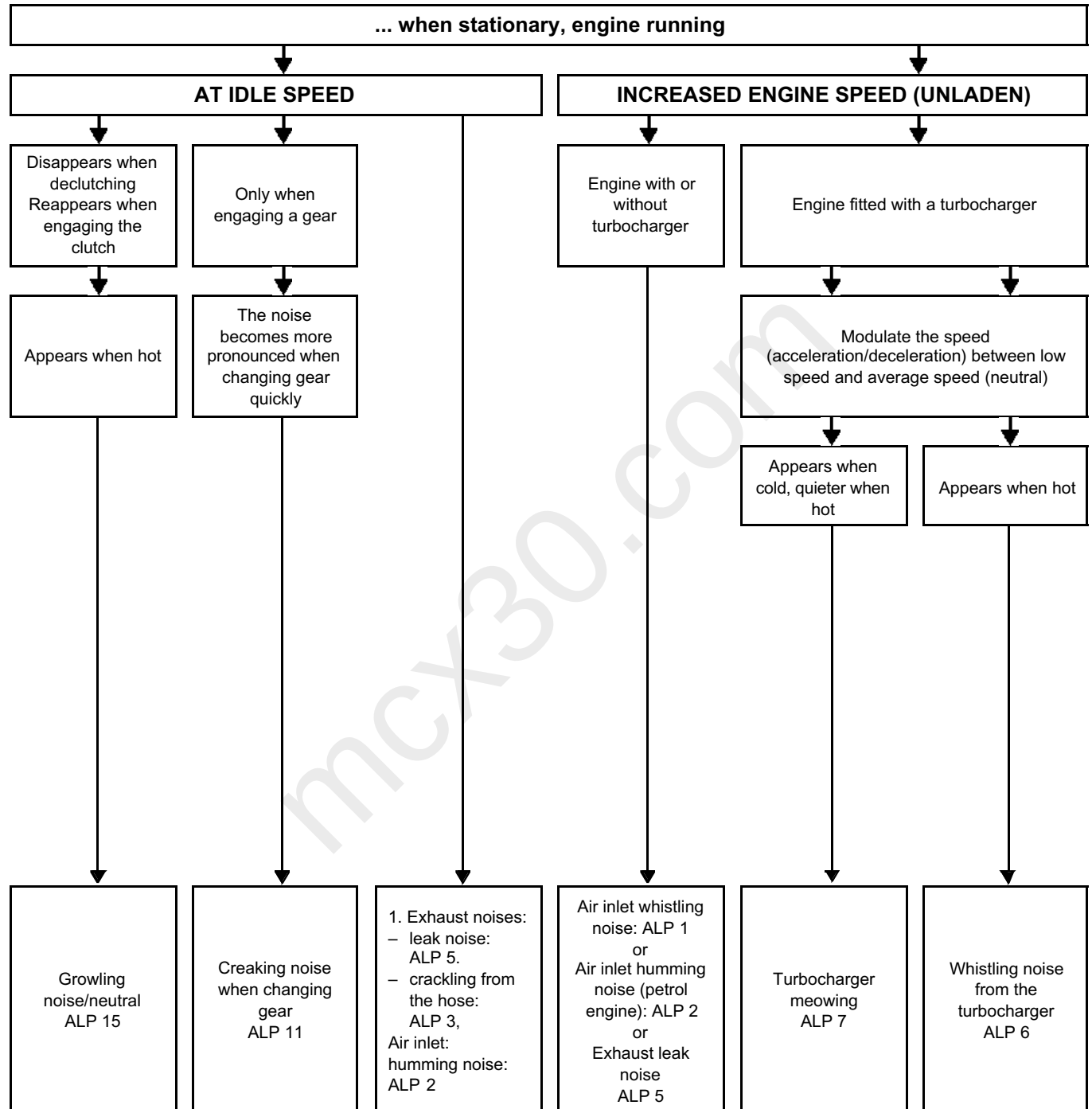
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 12

The noise is detected...



# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

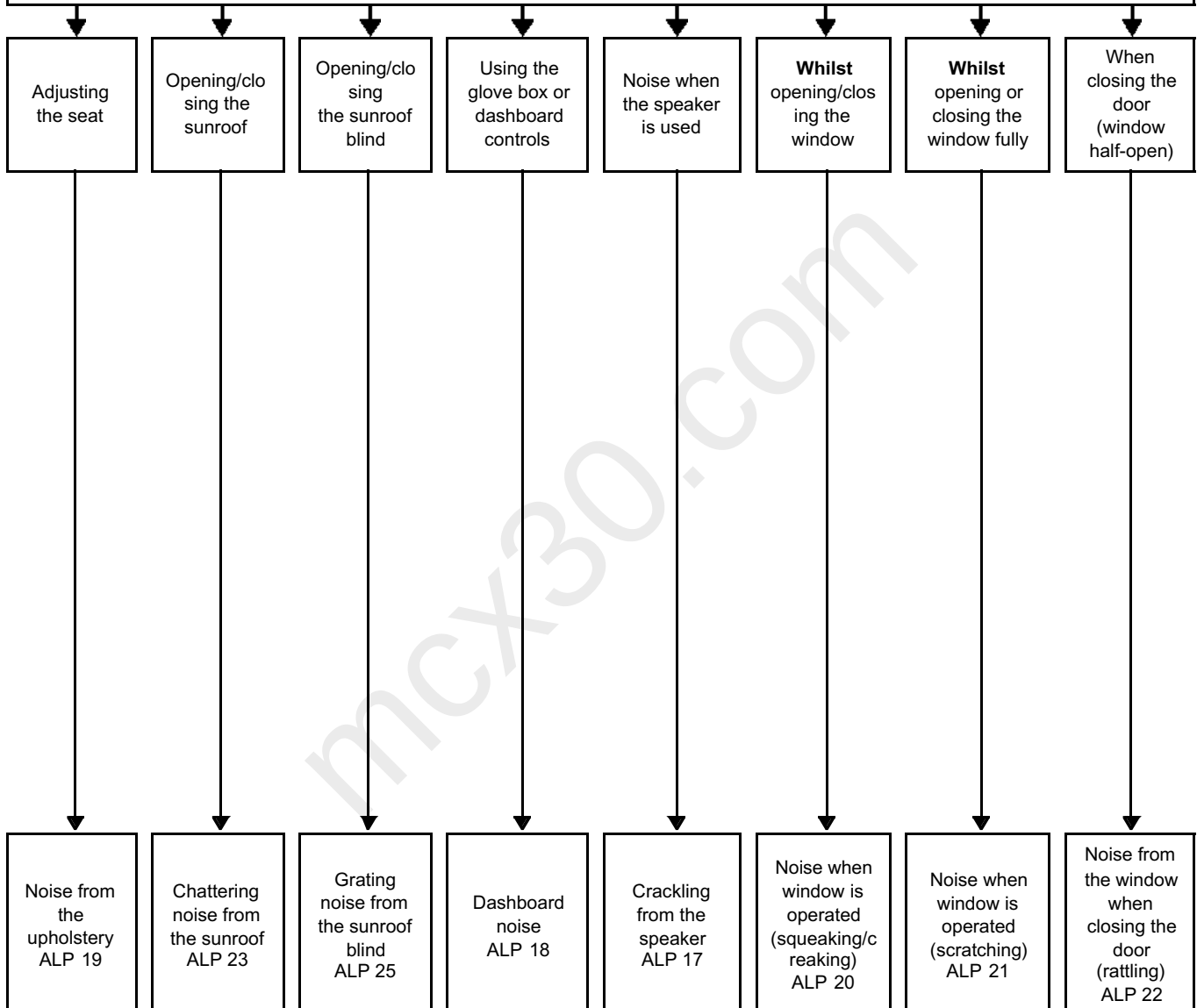
01E

Conditions under which the noise appears no. 13

The noise is detected...

... when stationary, engine running or not running

After driver's action on a vehicle fitting...



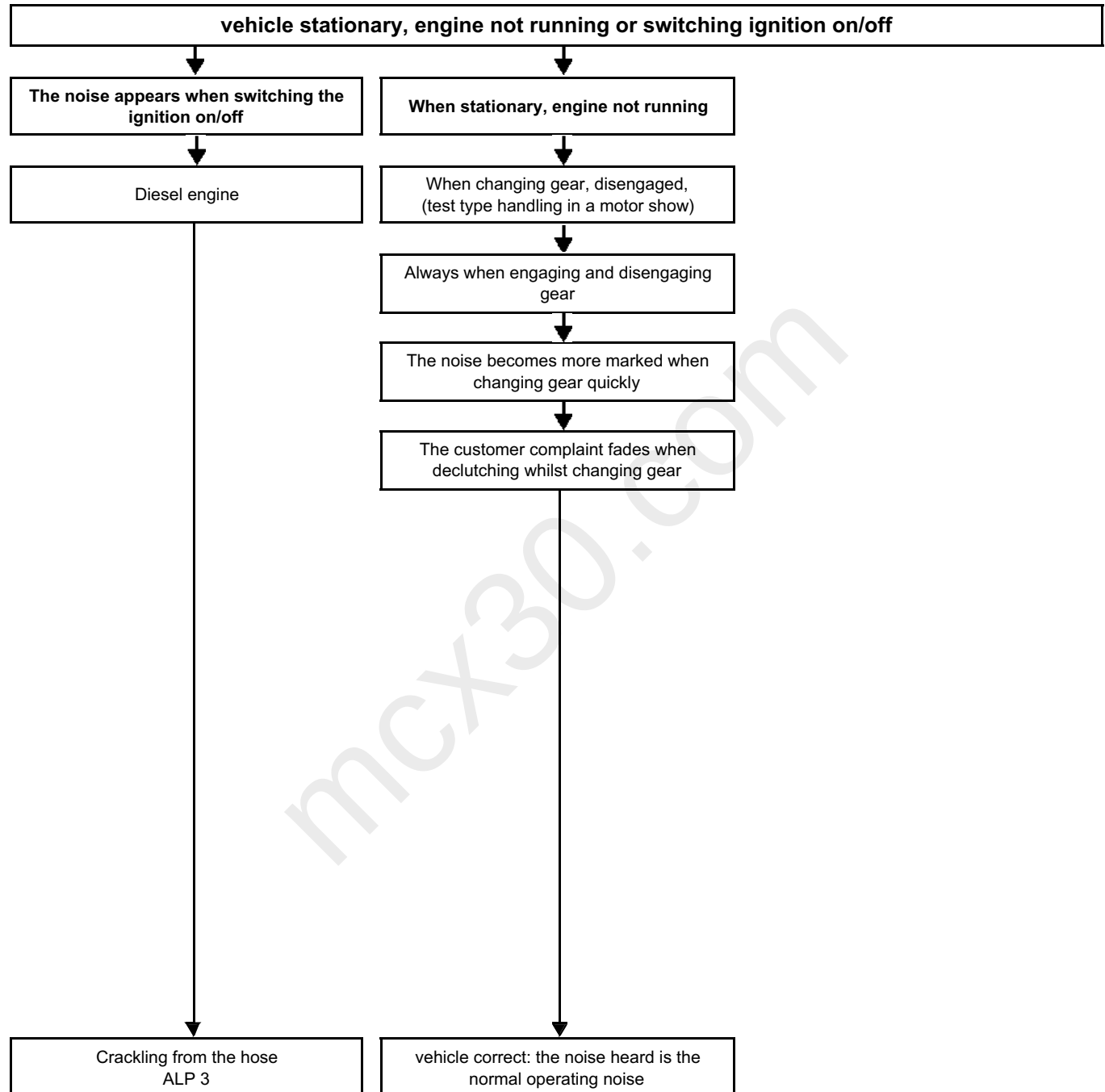
# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

01E

Conditions under which the noise appears no. 14

The noise is detected...



# FAULT FINDING INTRODUCTION

## Fault finding – Customer complaints

**01E**

|                                                                                                  |        |
|--------------------------------------------------------------------------------------------------|--------|
| AIR INLET WHISTLING NOISES                                                                       | ALP 1  |
| AIR INLET HUMMING NOISES                                                                         | ALP 2  |
| CRACKLING NOISES FROM THE CONNECTING HOSE OR BALL JOINT BRACKET (DEPENDING ON VERSION) (EXHAUST) | ALP 3  |
| UNDERBODY CONTACT NOISE (EXHAUST)                                                                | ALP 4  |
| EXHAUST LEAK NOISE                                                                               | ALP 5  |
| WHISTLING NOISE FROM THE TURBOCHARGER                                                            | ALP 6  |
| MEOWING NOISE FROM THE TURBOCHARGER                                                              | ALP 7  |
| BLOWING NOISE FROM THE TURBOCHARGER                                                              | ALP 8  |
| SIGHING NOISE FROM THE TURBOCHARGER (DIESEL ENGINE)                                              | ALP 9  |
| NOISE WHEN ENGAGING/DISENGAGING GEAR                                                             | ALP 10 |
| CREAKING NOISE WHEN CHANGING GEAR                                                                | ALP 11 |
| BANGING DURING POWER TAKE-UP OR TORQUE INVERSION                                                 | ALP 12 |
| WHINING NOISE FROM THE DRIVE TRAIN                                                               | ALP 13 |