

Identification markings using selected models of tractors manufactured by SAME DEUTZ-FAHR as an example

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Abstract

The article, on the example of two selected model groups of tractors of the SAME DEUTZ-FAHR corporation, presents information on the construction, location and method of making VIN identification. The author has presented detailed data on the location and design of the nameplates used by the manufacturer. It describes the drive units used and the identification markings on them, including their location and manufacturing technique. Issues related to the assignment of the model code in the body of the identification number depending on the variant and version of the tractor and the installed drive unit are discussed.

Keywords: number fields, identification markings, VINs, Same Deutz-Fahr

Introduction

Sales of new tractors in Poland in 2021 amounted to 14,074, the best result in seven years. This is an increase of more than 42% in sales compared to the previous year. The fourth tractor brand in terms of sales volume is Deutz-Fahr. The company improved its performance compared to the previous year by 34%. However, the true potential of this brand can be seen in the segment of tractors above 50 [hp], as in this range the company is the runner-up second only to the New Holland brand.

Along with the increase in newly registered tractors, we see an increase in their sales on the secondary market. This is also associated with an increase in the likelihood of selling tractors with altered or forged identification numbers.

The purpose of this article is to present, on the example of several selected models of tractors manufactured by SAME Deutz-Fahr, the possibility of their identification on the basis of basic markings used by the manufacturer.

Brand history

SAME was founded in 1942 in Treviglio by two brothers Francesco and Eugenio Cassani. In 1951 the new air-cooled engines were developed and in 1952 the first tractor with a four-wheel drive was manufactured.

In 1976, SAME purchased Lamborghini Trattori S.p.A, founded by Ferruccio Lamborghini. Later that year, the company bought Hurlimann from Switzerland, which led to the change of the company's name to S-L-H (Same-Lamborghini-Hurlimann).

In 1995, S-L-H purchased Deutz-Fahr from KHD of Germany and again changed its name to SAME DEUTZ-FAHR. In 2003, the corporation became a major shareholder in the German engine manufacturer Deutz AG. In Treviglio, Italy, an agreement was signed on 12 July 2007 for the sale of the production activities in Mełgiew near Lublin to the CMB Group. CMB, as a manufacturer of coupling systems, could thus provide the Same Deutz-Fahr corporation with a steady supply of parts, components and technology from the Lublin CMB factory.

SAME DEUTZ-FAHR is represented in the global market by its brands: SAME, DEUTZ-FAHR, LAMBORGHINI and HURLIMANN. Each brand continues to have its own individual character and offers a wide range of drive units.

Today, SDF is one of the world’s major manufacturers of tractors, harvesters and agricultural machinery.

1. Identification of selected models of tractors from the SAME DEUTZ-FAHR group

The article presents, due to limitations, the designations used for two model groups of SAME DEUTZ-FAHR tractors out of a very wide range of tractors.

Table 1. Designations used on tractors.

Table of markings on tractors	
• SAME SOLA 35	• HURLIMANN PRINCE 35
• SAME SOLARIS 45	• HURLIMANN PRINCE 45
• SAME SOLARIS 55	• HURLIMANN PRINCE 55
• LAMBORGHINI R1.35	• DEUTZ-FAHR AGROKID 210
• LAMBORGHINI R1.45	• DEUTZ-FAHR AGROKID 220
• LAMBORGHINI R1.55	• DEUTZ-FAHR AGROKID 230

Source: own resources

The identification number is located on the front axle bracket on the right-hand side. It is applied (stamped) by hand on the ‘raw’ casting and then coated in black or silver.



Figures 1÷3. Location and appearance of the identification number.

Source: own resources

The height of the graphic characters of the identification number is 10 mm and the width is 4 mm. The total length of the marking is 108 mm. Deviations in the length of the number and the distance between the characters

are permissible due to the manual method of applying the characters. The detailed structure of the identification number is shown in Table 2.

Table 2. Decoding of the identification number.

I.	Character 1÷3	Worldwide manufacturer code
II.	Character 4÷6	Model code
III.	Character 7÷8	Drive type
IV.	Character 9	Speed designation
V.	Character 10	Filling character
VI.	Character 11	Production facility
VII.	Character 12	Brand
VIII.	Character 13÷17	Serial number

Source: own resources

- I. **ZKD** - World Manufacturer Identifier (WMI).
- II. **S24** - type and model code - presented in detail in Table 2.
- III. Drive type: **01**- 2wd, **02**- 4wd.
- IV. Speed code: **V**- 30km/h, **W**-40km/h.
- V. Filling character.
- VI. Production facility: **M**-Mełgiew, **L**-Lauingen, **T**-Treviglio.
- VII. Brand: **D**-DEUTZ-FAHR, **L**-LAMBORGHINI, **S**-SAME, **H**-Hurlimann.
- VIII. Serial number **00001-20106**.

A 'model code' is assigned to a specific model and version of tractor, which is located at positions 4÷6 of the identification number.

Table 3. Decoding of the model code.

Tractor model	Model code	Serial number
SAME SOLARIS 35	S11	20000...
SAME SOLARIS 45	S12	20000...
SAME SOLARIS 55	S13	20000...
LAMBORGHINI R1.35	S14	20000...
LAMBORGHINI R1.45	S15	20000...
LAMBORGHINI R1.55	S16	20000...
HURLIMANN PRINCE 35	S17	20000...
HURLIMANN PRINCE 45	S18	20000...
HURLIMANN PRINCE 55	S19	20000...
DEUTZ-FAHR AGROKID 210	S20	20000...
DEUTZ-FAHR AGROKID 210	S21	20000...
DEUTZ-FAHR AGROKID 210	S22	20000...
SAME SOLARIS 35 BASSO	S23	20000...
SAME SOLARIS 45 BASSO	S24	20000...

Source: own resources

Table 4. Designations used on tractors.

SAME Dorato 3 60 GS i LS	DEUTZ-FAHR AGROPLUS 310
SAME Dorato 3 80 GS i LS	DEUTZ-FAHR AGROPLUS 320
SAME Dorato 3 90 GS i LS	DEUTZ-FAHR AGROPLUS 410
LAMBORGHINI R2.60 GS i LS	HURLIMANN XA 60 GS i LS
LAMBORGHINI R2.80 GS i LS	HURLIMANN XA 80 GS i LS
LAMBORGHINI R2.90 GS i LS	HURLIMANN XA 90 GS i LS

Source: own resources

The identification number is applied by means of a spot method on the bracket of the front axle on the right-hand side of the tractor. The height of the graphic characters of the number is 8 mm and the width is 4 mm. The total length of the marking is 80 mm.



Fig. 4. Appearance of the identification number.

Source: own resources

The structure of the identification number is shown in Table 5.

Table 5. Decoding of the identification number.

I.	Character 1÷3	Worldwide manufacturer code
II.	Character 4÷6	Model code
III.	Character 7÷8	Drive type
IV.	Character 9	Speed designation
V.	Character 10	Filling character
VI.	Character 11	Production facility
VII.	Character 12	Brand
VIII.	Character 13÷17	Serial number

Source: own resources

- I. **ZKD** - World Manufacturer Identifier (WMI).
- II. **R34** - type and model code - presented in detail in Table 4.
- III. Drive type: **01**- 2wd, **02**- 4wd.
- IV. Speed code: **V**- 30km/h, **W**-40km/h.
- V. Filling character.
- VI. Production facility: **M**-Mełgiew, **L**-Lauingen, **T**-Treviglio.
- VII. Brand: **D**-DEUTZ-FAHR, **L**-LAMBORGHINI, **S**-SAME, **H**-Hurlimann.
- VIII. Serial number **00001-20106**

Depending on the version of the tractor, a model code was assigned by the manufacturer, which is located in positions 4÷6 of the identification number. Table 6 presents a statement of manufacturer codes for selected 24 versions of tractors.

Table 6. Model and type decoding depending on the variant and version.

Variant	Version	Model code
60T1/60T2	SAME Dorato 3 60 GS	R38
	SAME Dorato 3 60 LS	R26
60T1/60T2	LAMBORGHINI R2.60 GS	R39
	LAMBORGHINI R2.60 LS	R27
60T1/60T2	HURLIM.PRINCEXA 60 GS	R40
	HURLIM.PRINCEXA 60 LS	R28
60T1/60T2	DEUTZ-FAHR AGROPLUS 310 GS	R41
	DEUTZ-FAHR AGROPLUS 310 LS	R29
80T1/80T2	SAME Dorato 3 80 GS	R42
	SAME Dorato 3 80 LS	R30
80T1/80T2	LAMBORGHINI R2.80 GS	R43
	LAMBORGHINI R2.80 LS	R31
80T1/80T2	HURLIM.PRINCEXA 80 GS	R44
	HURLIM.PRINCEXA 80 LS	R32
80T1/80T2	DEUTZ-FAHR AGROPLUS 320 GS	R45
	DEUTZ-FAHR AGROPLUS 320 LS	R33
90T1/90T2	SAME Dorato 3 90 GS	R46
	SAME Dorato 3 90 LS	R34
90T1/90T2	LAMBORGHINI R2.90 GS	R47
	LAMBORGHINI R2.90 LS	R35
90T1/90T2	HURLIM.PRINCEXA 90 GS	R48
	HURLIM.PRINCEXA 90 LS	R36
90T1/90T2	DEUTZ-FAHR AGROPLUS 410 GS	R49
	DEUTZ-FAHR AGROPLUS 410 LS	R37

Source: own resources

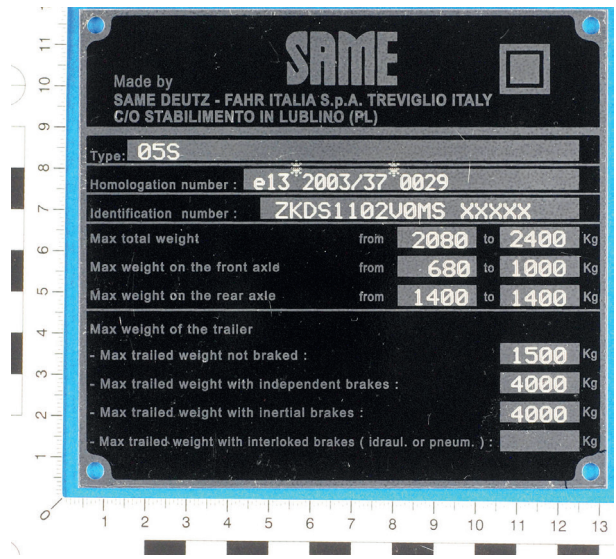
Tractor variants: 80T1, 90T1, 100T1 and 90R1 were fitted with C54 cabin type, while the variants: 80T2, 90T2, 100T2 and 90R2 were fitted with T97 piping type. Markings indicating the type of body were found on the cabin nameplates.

Different drive units were fitted depending on the tractor variant. A detailed description of the drive units is provided in item 3.2.

2. Nameplate

The location of the nameplate and its method of manufacturing depends on the manufacturer. It should be made of non-corrosive materials, hence the use of non-ferrous metals.

In the SAME DEUTZ-FAHR tractors, which are the subject of this study, the nameplate is mounted on the right-hand side of the operator's station, and on the rear of the cabin in cabin versions. It is fixed with tubular rivets. It is made of aluminium sheet in the shape of a rectangle measuring 128 mm/116 mm. The outer edges as well as the mounting holes are cut out on the press using punching dies. The printing is done by screen printing, and the contents of the individual fields are completed using a micro-impact method.



Figures 5 and 6. Location and appearance of the nameplate.
Source: own resources

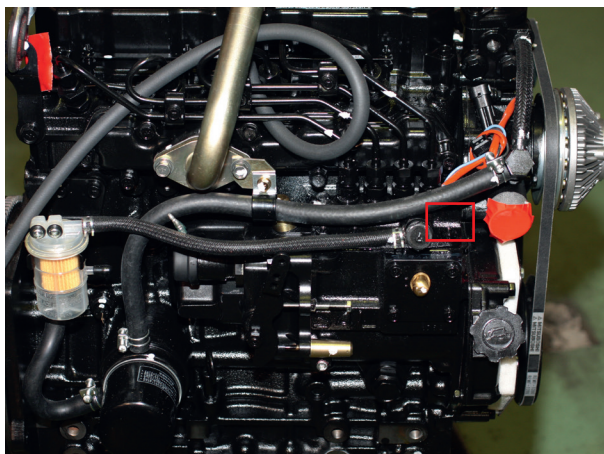


Fig. 7. Appearance of graphic characters.
Source: own resources

3. Engine

Drive units fitted to tractors and machinery can be either frame-mounted or constitute a major structural component in their own right. The method of affixing, construction and location of the engine number is not standardised and depends on the manufacturer and internal company standards.

3.1. SAME Solaris 45 tractors are fitted with diesel drive units manufactured by Mitsubishi Heavy Industries Ltd. These engines have their own identification number, which is affixed to a special sprue on the injection pump body, which is an integral part of the engine block.



Figures 8 and 9. Location and appearance of the engine identification number.
Source: own resources

3.2 In T1 category tractors, e.g. SAME Dorato 3 60, Dorato 3 80, Dorato 3 100, LAMBORGHINI R2.60, R2 80, R2.90, R2.100 HURLIM. Prince XA60, XA80, XA90, XA100 and DEUTZ-FAHR AGROPLUS 310, AGROPLUS 320, AGROPLUS 410 and AGROPLUS 420, the engine identification number is marked on the engine body using the electrodeposition method. In addition, there is a nameplate on the left side of the engine body with the engine identification number repeated.



Figures 10 and 11. Location and appearance of the engine identification number.

Source: own resources

There are three types of drive units that are fitted to a given unit of the tractor depending on the variant and version.

- Variant 60T1, 60T2 - engine 1000.3WT3E,
- Variant 80T1, 80T2 - engine 1000.3WT23E,
- Variant 90 T1, 90T2, 100T1, 100T2 - engine 1000.4WT12E3.

4. Cabin

The tractors manufactured by the SAME DEUTZ-FAHR concern came in versions with a cabin or with piping only. They are fitted with a nameplate which is located at the rear of the cabin on the right-hand side or near the service brake lever. The rectangular shape of the plate is produced on presses using punching dies. The printing is done by screen printing, and the contents of the individual fields are completed using a micro-impact method.

5. Marking of main units

The main units of SAME DEUTZ-FAHR tractors are marked with individual serial numbers. Depending on the model, different components are marked. Due to the widespread availability of Issue of the Forensic Science, the author of the study does not present issues related to the possibility of identifying tractors of the SAME DEUTZ-FAHR group on the basis of additional markings applied by the manufacturer.

Summary

The presented information on the identification markings of agricultural tractors of the SAME DEUTZ-FAHR group is only an introduction and constitutes the basis for addressing the topic in the field of mechanoscopic testing of the tractor identification markings. It is believed that the manufacturer's data presented on the solutions and methods of applying the identification markings will be helpful both in preparing for possible tests of the originality of the markings and in analysing the information collected.

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In the article, the author did not include issues related to the possibility of identifying tractors of the SAME DEUTZ-FAHR group on the basis of additional markings used by the manufacturer due to the widespread availability of issues of the Forensic Science.

The study is based on data and information obtained from the manufacturer and a representative of CMB Polska sp. z o. o.