

Foreword

The formulation of this Standard was initiated by the Agricultural Machinery Testing and Evaluation Center (AMTEC) under the project entitled "Enhancing the Implementation of AFMA Through Improved Agricultural Engineering Standards" which was funded by the Bureau of Agricultural Research (BAR) of the Department of Agriculture (DA).

This revised standard was reviewed by the Technical Committee for Study 1- Development of Standards for Agricultural Production Machinery and was circulated to various private and government agencies/organizations concerned for their comments and reactions. This standard was presented to the Philippine Society of Agricultural Engineers (PSAE) and subjected to a public hearing organized by the National Agriculture and Fisheries Council (NAFC). The comments and reactions received during the presentation and public hearing were taken into consideration in the finalization of this standard.

This standard has been formulated in accordance with PNS 01:Part 4:1998 - Rules for the Structure and Drafting of Philippine National Standards.

In the preparation of this standard, the following documents/publications were considered:

AMTEC Test Reports on walking-type agricultural tractor

Republic Act No. 7394 otherwise known as "The Consumer Act of the Philippines" enacted on July 22, 1991.

Agricultural Machinery – Walking-type Agricultural Tractor – Specifications
Part 1 : Pull-type

1 Scope

This standard specifies the requirements for walking-type agricultural tractor which is classified as pull-type. This includes tractors with chain and sprocket transmission system, gear transmission system and combination thereof.

2 References

The following normative documents contain provisions, which, through reference in this text, constitute provisions of this Standard:

PAES 102:2000, Agricultural Machinery – Operator’s Manual – Content and Presentation

PAES 103:2000, Agricultural Machinery – Method of Sampling.

PAES 107:2000, Agricultural Machinery – Hitch for Walking-Type Agricultural Tractor – Specifications.

PAES 108:2000, Agricultural Machinery – Hexagonal Axle and Hub for Walking Type Agricultural Tractor – Specifications.

PAES 111:2000, Agricultural Machinery – Walking-Type Agricultural Tractor – Methods of Test.

3 Definitions

For the purpose of this standard, the following definitions shall apply:

3.1**walking-type agricultural tractor**

hand tractor

pedestrian tractor

self-propelled machine having a single axle designed primarily to pull and propel trailed or mounted agricultural implements and machinery

3.2**pull type**

traction type

capable of pulling various kinds of implements

4 Construction

The basic construction and components of the tractor is shown in Figure 1.

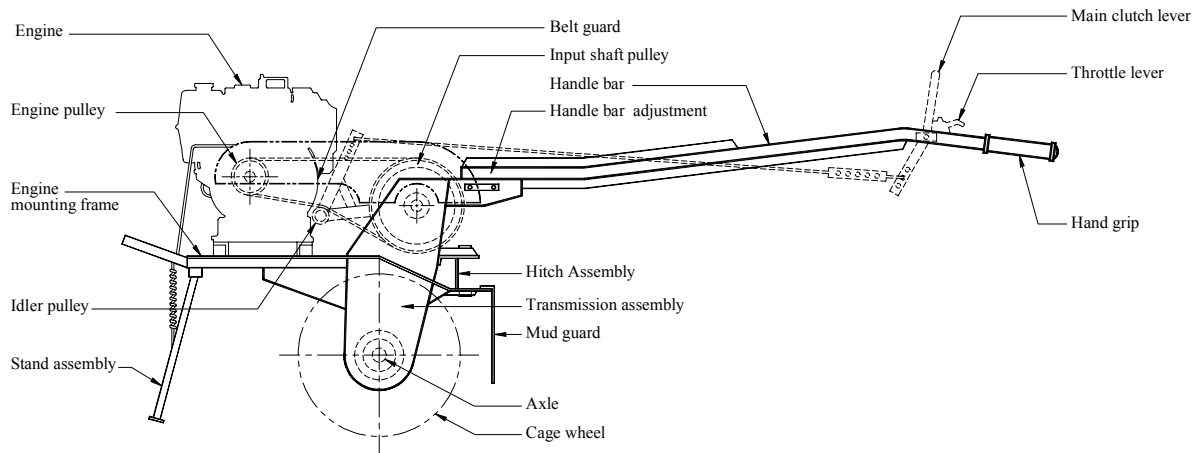


Figure 1 – Components of Walking-type Agricultural Tractor (Pull-type)

5 Materials of Construction

5.1 The tractor shall be generally made of steel bars and sheet metals.

5.2 At least ISO chain number 10A-1 (ANSI chain number 50) shall be used for the chain and sprocket transmission system.

5.3 The handle bar shall be made of Black Iron (BI) pipe (schedule 40) with a minimum diameter of 25 mm.

6 Controls

6.1 Throttle Lever

6.1.1 This shall be accessible to the operator's right-hand side of the handle bar.

6.1.2 Types of throttle levers

6.1.2.1 Vertical type

For this type, the throttle lever is pushed forward to increase engine speed and pulled rearward to decrease engine speed.

6.1.2.2 Horizontal Type

For this type, the throttle lever is pulled to the left to increase engine speed and to the right to decrease engine speed.

6.2 Main Clutch Lever

6.2.1 This shall be accessible to the operator's-left hand side of the handle bar.

6.2.2 In the case of a vertical lever, the lever shall be pushed forward to start the forward motion of the tractor and shall be pulled rearward to stop the tractor. An over-center linkage shall lock the lever in the forward engaged position.

6.2.3 In the case of a horizontal lever, the lever shall be pushed upward to start the forward motion of the tractor and shall be pulled downward to stop the tractor. A lock shall be provided to hold the lever in the upward engaged position.

7 Performance Requirements

The tractor when tested in accordance with PAES 111 shall conform to the following requirements:

7.1 The peak transmission efficiency of the tractor shall be at least 85%.

7.2 The manufacturer's specified minimum field capacity of the tractor shall be attained.

7.3 The noise emitted by the tractor measured 50 mm away from the operator's ear level shall not be more than 92 db (A).*

8 Other Requirements

8.1 For operator's safety, the following shall be provided:

8.1.1 Belt guard or cover

8.1.2 Mud guard

8.1.3 Rubber hand grip

8.2 Mechanisms for transmission belt adjustment shall be provided.

8.3 Mechanism for handle bar height adjustment shall be provided.

8.4 The hitch of the tractor shall be in accordance with the specifications of PAES 107.

* Allowable noise level for six (6) hours of continuous exposure based on Occupational Safety and Health Standards, Ministry of Labor, Philippines. 1983.

8.5 The hexagonal axle of the tractor shall be in accordance with the specifications of PAES 108.

8.6 When the tractor is in transport mode, agricultural rubber tires shall be used.

9 Workmanship and Finish

9.1 The tractor shall be free from manufacturing defects that may be detrimental to its operation.

9.2 Any uncoated metallic surfaces shall be free from rust and shall be painted properly.

9.3 The tractor shall be free from sharp edges and surfaces that may injure the operator.

10 Warranty for Construction and Durability

10.1 Warranty against defective materials and workmanship shall be provided for parts and services except on consumable maintenance parts such as belts within six (6) months from the purchase of the tractor.

10.2 The construction shall be rigid and durable without breakdown of its major components (i.e. transmission systems, etc) within six (6) months from purchase by the first buyer.

11 Maintenance and Operation

11.1 Each tractor unit shall be provided with the following basic hand tools: three (3) pieces open wrenches; one (1) piece each of Philips and flat screw driver; and one (1) piece adjustable wrench.

11.2 An operator's manual, which conforms to PAES 102, shall be provided.

12 Sampling

The tractor shall be sampled for testing in accordance with PAES 103.

13 Testing

The sampled tractor shall be tested in accordance with PAES 111.

14 Marking and Labeling

Each tractor shall be marked with the following information using a plate, stencil or by directly punching it at the most conspicuous place:

- 14.1** Registered Trademark of the Manufacturer
- 14.2** Brand
- 14.3** Model
- 14.4** Serial number
- 14.5** Name and address of the manufacturer
- 14.6** Name and address of the importer, if imported (optional)
- 14.7** Country of manufacture (if imported) / “Made in the Philippines” (if manufactured in the Philippines)
- 14.8** Power requirement, kW
- 14.9** Safety/precautionary markings