TRAINING ON ANTAM STANDARD CODE
For TESTING OF KNAPSACK MISTERS CUM DUSTERS

Theory 3:

Checking of specifications (Test Code Section IV(1) and Annex B)

2nd Training of Trainers on ANTAM Codes
16 - 28 October2016, Nanjing China

ANTAM
Asian and Pacific Network for Testing Agricultural Machinery

Importance of checking specification

- Identification of machine
- Identification of the manufacturer
- Confirm declared specifications against sample
- Prevent substitution of machine
- Prevent modification of machine and substitution of critical parts.
- Ensure traceability of any sampled machine to the model tested

Documentation-Indian procedure

- The following documents form the basis of checking specification
- Application by manufacturer with specifications
- Performance characteristics declared by manufacturer.
- Operators manual
- Parts catalogue
- Service manual

ANTAM- procedure by *Sandro Liberatori*

- The procedural aspects have to be taken into consideration in order to provide documents in accordance to international regulations on certification procedures considering also some aspects as the traceability of every step of the process.
- Regarding the procedural aspects, some topics have to be taken into account that are strictly related to traceability, responsibility and commercial issues for the manufacturers.

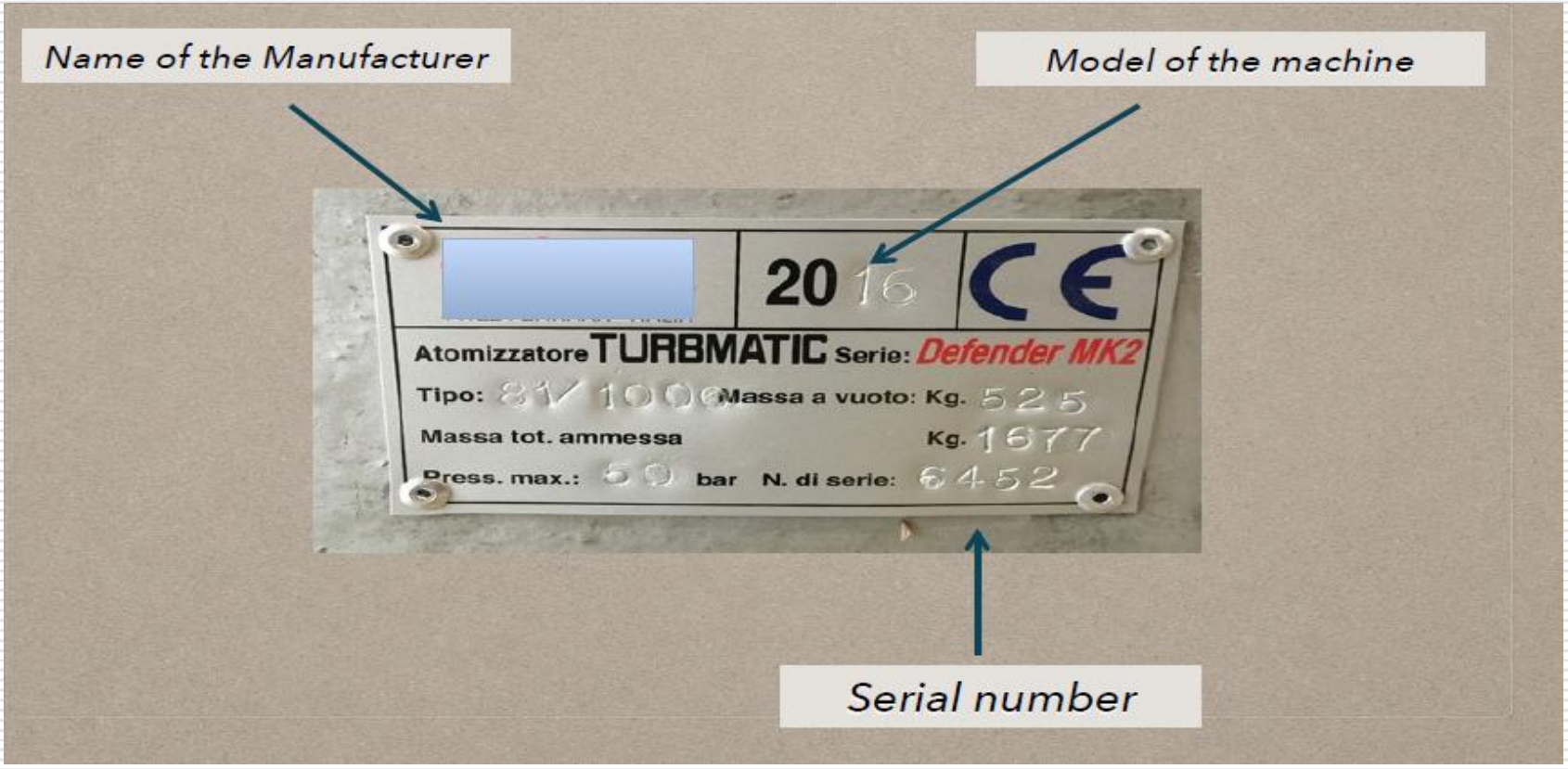
Importance of sampling

- Ensure that a representative machine is sampled for testing
- Ensure that the machine being tested is a standardized model and not a prototype/ limited batch manufactured model likely to be modified subsequently.
- Eliminating bias
- Confirm the genuineness of manufacturer
- Prevent samples that have substituted parts / systems.

Identification

- The identification of the product being tested is important because it provides for a clear definition of the product as a sample of a serial production.
- Therefore the name of the manufacturer or importer is necessary because it is the body asking and eventually paying for the test report. He is also the owner of the results and might not allow the testing station to publish them.
- The identification is necessary because it allows to identify clearly the machine being tested and the responsibility of the testing station will be limited on the sample being tested.
- The identification should carry the name of the manufacturer/ importer, the model, the serial number and possibly a picture of the machine with a focus on the plate applied on the machine.

Sample Identification



Conformity

- With a clear procedure the responsibility of the conformity will rely only on the manufacturer/importer.
- The conformity is very important and is made under responsibility of the manufacturer/importer that declares that every machine being produced/imported carrying the same name is totally equivalent to the sample being tested.
- In case of lack of the conformity the test report cannot be used because the testing station cannot be considered responsible for any changes made on the machine.

Example of Conformity

- An example can help to understand better this point. A power tiller can be sold in different areas of a country but because of commercial reasons the engine may be different. In the area “A” customers like an engine made by “Y” company and in the area “B” customers prefer an engine made by “X” company. The other parts of the machine are exactly the same as well as the name of the machine. This is a real case happening very often but it provides for two different machines with different performances and in some case different safety levels.
- The situation can be easily solved because the manufacturer may ask for a test and an extension of the test for a second or third engine mounted on the machine. The resulting test report should carry the performances of all versions with a clear distinction.

Identification and conformity

- IDENTIFICATION: the responsibility of the testing station will be limited to the sample being tested
- CONFORMITY: the responsibility of the manufacturer/importer is on the machines being produced

Checking of Specifications

Specification Sheet

The power tiller manufacturer/applicant shall supply the specifications of the power tiller consisting of the items listed in the specimen report given in **Annex B**, as well as any other information required by the testing authority to carry out the tests. The manufacturer/ applicant shall also supply technical literature such as operation, maintenance and service manuals, and parts catalogue (4.1 IS 9935: 2002).

The information given by the manufacturer/applicant in the specification sheet (Clause 1.1.1) shall be verified by the testing authority and reported. Details of the components and assemblies which do not conform to the relevant ANTAM Codes shall also be reported. The adequacy or otherwise of the literature shall be indicated (7.1 IS 9935: 2002).

Conditions for Checking of Dimensions

While checking the dimensions of the power tiller, the conditions laid down in 4.1 of the general guidelines shall be followed.

- **The manufacturer will supply the specifications of the power tiller along with the request for testing. The specification are to be in the format prescribed in ANTAM Annex B** *(Clause 1.1.1)*

- Annex B, C, D and E are developed in reference to IS 9935: 2002.

POWER TILLER

- a) Name and address of the manufacturer:
- b) Name and address of the applicant for test:
- c) Type:
- d) Make/Model:
- e) Serial number:
- f) Year of manufacture:
- g) Net mass, kg:

ENGINE

1. Type/Make/Model:
2. Manufacturer:
3. Serial number:
4. Engine rated speed (recommended by manufacturer) :
5. Power at rated speed, kW:
6. Net mass, kg:

CYLINDERAND CYLINDER HEAD

a) Configuration (vertical or horizontal):

b) Bore/stroke, mm:

c) Capacity, cm^3:

d) Compression ratio:

e) Type of combustion chamber:

FUEL SYSTEM

a) Type of fuel

b) Capacity of fuel tank, liters:

c) Type of fuel filter:

d) Manufacturer's production setting of fuel injectors (Valve opening pressure), kPa:

e) Injection timing:

f) Type of injection pump:

GOVERNOR

a) Type:

b) Governed range of engine speed, rpm:

c) Rated engine speed, rpm:

AIR CLEANER

a) Type (wet or dry) :

b) Location of air intake (in case of no pre-cleaner) :

c) Oil sump capacity, liter:

EXHAUST

a) Type of silencer:

b) Location:

OIL SUMP CAPACITY, liter:

COOLING SYSTEM

a) Type:

b) Details of pump and fan, if available:

c) Coolant capacity, liter:

ELECTRICAL SYSTEM

a) Voltage:

b) Output power of generator, kW:

c) Details of headlights (number, Watt):

POWER TRANSMISSION SYSTEM

a) Gearbox

1) Oil capacity, liters:

2) Number of gears

i) Forward:

ii) Reverse:

3) Nominal traveling speed at rated engine speed

- b) Type of main clutch:
- c) Type of steering clutch:

	Gear number	Nominal traveling speed (*) at the rated engine speed of … rpm (km/h)
Forward	L1	
	L2	
	L3	
	H1	
	H2	
	H3	
Reverse	L1	
	H1	

ROTARY SHAFT

a) Location:
b) Number of splines:
c) Speed, rpm:
d) Diameter of shaft, mm:
e) Height above ground, mm:
f) Direction of rotation (viewed from driving end) :
g) Rotary shaft speed at rated engine speed, rpm:
h) Power transmission system
1) Sprocket and chain:
2) Any other:
i) Arrangement for fitting of tines on the shaft:
j) Number and type of tines:

Belt Transmission

- **MAIN PULLEY**
- a) Type and number of belts:
- b) Diameter, mm:
- c) Location:
- d) Reduction ratio (from engine to clutch) :
- e) Rotational speed at rated engine speed (rpm):

HITCH (If applicable)

a) Type (pin or nut and bolt):

b) Location:

c) Height above ground level, mm

1) Maximum:

2) Minimum:

PARKING BRAKE

a) Type:

b) Method of operation:

WHEEL

a) Tyres
1) Make:
2) Size:
3) Type of tyre:
4) Ply rating:
5) Recommended inflation pressure, kPa
i) For fieldwork:
ii) For transport:
6) Track width, mm:
7) Method of changing track width, range and number of steps:
8) Method of changing track width, if any, and range:

B) STEEL WHEEL FOR WET LAND

1) Track width, mm:

2) Type:

3) Size

i) Diameter, mm:

ii) Width, mm:

4) Total mass (2 wheels), kg:

c) Tail wheel (if applicable)

1) Steel wheel

i) Diameter, mm:

ii) Width, mm:

iii) Mass, kg:

2) Pneumatic tyre

i) Type:

ii) Tyre inflation, kPa:

iii) Mass, kg:

OPERATOR'S SEAT FOR RIDING TYPE

a) Type:

b) Type of suspension:

c) Range of adjustment (if any), mm:

Ballast

Ballast Mass as Used, kg		
	Water	*Cast Iron Weight on -Wheel*
Optional ballast		

MASS OF POWER TILLER (WITHOUT DRIVER BUT WITH LUBRICANT, FUEL AND COOLANT FULL)

	Ballast	Unballast
Total		

OVERALL DIMENTIONS (mm)				
Conditions	*Length**	*Width**	*Height**	*Ground Clearance*
With ballast				
Without ballast				
** Measure the outermost points*				