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*Indian Standard*

GUIDELINES FOR STOCKING SPARE PARTS  
OF AGRICULTURAL TRACTORS

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# Indian Standard

## GUIDELINES FOR STOCKING SPARE PARTS OF AGRICULTURAL TRACTORS

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# *Indian Standard*

## GUIDELINES FOR STOCKING SPARE PARTS OF AGRICULTURAL TRACTORS

### 0. FOREWORD

**0.1** This Indian Standard was adopted by the Indian Standards Institution on 31 July 1981, after the draft finalized by the Agricultural Tractors and Power Tillers Sectional Committee had been approved by the Agricultural and Food Products Division Council.

**0.2** Stocking of spare parts is of vital importance to ensure that the tractors are repaired and serviced in the shortest possible time for minimizing the loss of down-time. It was, therefore, felt necessary to develop recommendatory guidelines to protect the interest of the users/farmers.

**0.3** It is wellknown that the stocking of spare parts is not a matter of simple arithmetic related to tractor population, but it is dependent on a number of factors. Some of them are as under:

- a) Tractor population in a dealership;
- b) Current age of the tractors operating in that area;
- c) Number of tractor models marketed by the manufacturers in that area;
- d) Situation of existance of private mechanics undertaking repair of tractors in that area and the actual number of farmers dependent upon the tractor manufacturer's authorized dealers and service points;
- e) Components' life and their storage requirements, more particularly such components which are rubber or elastomer based including 'O'-rings, belts, etc;
- f) Service and maintenance points created by original equipment suppliers, like fuel injection system, electrical, etc; and
- g) Engineering skill of the farmers/operators.

**0.3.1** In view of above, it is not possible to formulate very rigid standard on stocking of various spare parts. However, a guideline would be useful and appropriate.

**0.4** It was felt that if the farmer is given some components, this would help him in getting the proper parts replaced by the mechanics and in some cases he can also do the repair job. Stocking by the dealers would save the

time and money of the farmer which otherwise he would have spent in procuring the parts from manufacturers. The manufacturers are the custodian of all the parts required for repair and upkeep of tractors manufactured by them.

0.5 This standard, which has been prepared keeping in view the broad spectrum of current experience of various tractor manufacturers, their dealers and feedback from the field, covers guidelines for stocking of spare parts at three levels — farmers, dealers and manufacturers.

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## **1. SCOPE**

1.1 This standard provides a guideline for stocking of spare parts of agricultural tractors by farmers, dealers/stockists and manufacturers.

## **2. PARTS TO BE STOCKED BY CUSTOMERS/FARMERS**

2.1 The parts along with their quantity to be stocked by the customers/farmers are given below:

| <i>Sl<br/>No.</i> | <i>Parts</i>                                                | <i>Quantity per Tractor</i> |
|-------------------|-------------------------------------------------------------|-----------------------------|
| ( 1 )             | ( 2 )                                                       | ( 3 )                       |
| i)                | Fan belt                                                    | 2 sets                      |
| ii)               | Lubrication oil filters with rubber rings and sealing rings | 2 sets                      |
| iii)              | Water pump repair kit                                       | 1                           |
| iv)               | Radiator cap                                                | 1                           |
| v)                | Dust cap/plug                                               | 1 set                       |
| vi)               | Fuel filter inserts                                         | 2 sets                      |
| vii)              | Rocker cover gasket                                         | 2 sets                      |
| viii)             | Assorted split pins                                         | As required                 |
| ix)               | Assorted bulbs                                              | 1 set                       |
| x)                | Fuse assembly                                               | 2 sets                      |
| xi)               | Linch pin assembly                                          | 1 set                       |
| xii)              | Hoses                                                       | 1 set                       |
| xiii)             | Nozzle                                                      | 1 set                       |



**3. PARTS TO BE STOCKED BY THE DEALERS/STOCKISTS**

**3.1** The parts along with their quantity for different assembly groups to be stocked by the dealers/stockists are given below:

**3.1.1 Engine Group**

| <i>Sl No.</i> | <i>Parts</i>                                                           | <i>Quantity</i>    |
|---------------|------------------------------------------------------------------------|--------------------|
| ( 1 )         | ( 2 )                                                                  | ( 3 )              |
| i)            | Radiator assembly                                                      | 1 for 100 tractors |
| ii)           | Water pump assembly                                                    | do                 |
| iii)          | Fan assembly                                                           | do                 |
| iv)           | Water pump repair kit                                                  | 1 for 10 tractors  |
| v)            | Gasket set ( top overhaul )                                            | do                 |
| vi)           | Cylinder head gasket                                                   | 1 for 20 tractors  |
| vii)          | Radiator cap                                                           | do                 |
| viii)         | Main bearing and connecting rod bearing set ( standard and undersize ) | do                 |
| ix)           | Connecting rod small end bush                                          | do                 |
| x)            | Ring sets ( standard and oversize )                                    | do                 |
| xi)           | Timing gear/chain                                                      | 1 for 100 tractors |
| xii)          | Lubricating oil pump assembly                                          | do                 |
| xiii)         | Lubricating oil filters ( if throw away type )                         | 1 for 5 tractors   |
| xiv)          | Fuel filters*                                                          | do                 |
| xv)           | Nozzles*                                                               | 1 for 10 tractors  |
| xvi)          | Fuel injection pump coupling                                           | 1 for 100 tractors |
| xvii)         | Oil seals, front and rear                                              | 1 for 10 tractors  |
| xviii)        | Rockers ( valve )                                                      | 1 for 100 tractors |
| xix)          | Crank shaft                                                            | 1 for 200 tractors |
| xx)           | Cam shaft                                                              | do                 |
| xxi)          | Injection assembly*                                                    | 1 for 100 tractors |

\*Proprietary stocking.

**3.1.2 Clutch Group\***

| <i>Sl No.</i> | <i>Parts</i>                 | <i>Quantity</i>       |
|---------------|------------------------------|-----------------------|
| ( 1 )         | ( 2 )                        | ( 3 )                 |
|               | i) Clutch plate with lining  | 1 for 50 tractors     |
|               | ii) Secondary clutch plate   | do                    |
|               | iii) Clutch release bearings | 1 for 25 tractors     |
|               | iv) Clutch overhaul kit      | 1 for 20 tractors     |
|               | v) Pressure plate            | 1 for 100 tractors    |
|               | vi) Clutch shaft bushes      | 1 set for 50 tractors |

**3.1.3 Gear Box/Transmission Group**

| <i>Sl No.</i> | <i>Parts</i>                                 | <i>Quantity</i>                 |
|---------------|----------------------------------------------|---------------------------------|
| ( 1 )         | ( 2 )                                        | ( 3 )                           |
|               | i) All sliding gears and constant mesh gears | 1 set for 500 tractors          |
|               | ii) Fork sliding set                         | 1 set for 200 tractors          |
|               | iii) Bearings                                | do                              |
|               | iv) Main shaft/lay shaft                     | 1 set for 500 tractors          |
|               | v) Crown wheel and pinion                    | 1 set for 1 000 tractors        |
|               | vi) Differential gears                       | do                              |
|               | vii) Thrust washer                           | 3 sets for 100 tractors         |
|               | viii) Reduction gears                        | 1 set for 1 000 tractors        |
|               | ix) Rear axle shaft                          | 1 of each side for 500 tractors |
|               | x) Oil seals                                 | 1 set for 20 tractors           |
|               | xi) Drive bushes                             | 1 for 50 tractors               |
|               | xii) Wheel studs                             | 1 set for 50 tractors           |

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\*Proprietary stocking.

**3.1.4 Steering and Front Axle Group**

| <i>Sl No.</i> | <i>Parts</i>                      | <i>Quantity</i>          |
|---------------|-----------------------------------|--------------------------|
| ( 1 )         | ( 2 )                             | ( 3 )                    |
| i)            | Steering assembly                 | 1 for 1 000 tractors     |
| ii)           | Steering gears                    | 1 set for 1 000 tractors |
| iii)          | Worm and nut                      | do                       |
| iv)           | Oil seals                         | 1 set for 20 tractors    |
| v)            | Drop arm                          | 1 set for 500 tractors   |
| vi)           | Tie-rod end                       | 1 set for 25 tractors    |
| vii)          | Steering wheel                    | 1 for 1 000 tractors     |
| viii)         | Front axle assembly               | do                       |
| ix)           | Front hubs                        | 1 set for 1 000 tractors |
| x)            | Front hub bearings                | 1 set for 20 tractors    |
| xi)           | Seals                             | do                       |
| xii)          | Front rims                        | 1 set for 500 tractors   |
| xiii)         | Seams, thrust washer and hardware | 1 set for 20 tractors    |
| xiv)          | Other miscellaneous items         | 1 set for 50 tractors    |

**3.1.5 Hydraulics**

| <i>Sl No.</i> | <i>Parts</i>                     | <i>Quantity</i>           |
|---------------|----------------------------------|---------------------------|
| ( 1 )         | ( 2 )                            | ( 3 )                     |
| i)            | Pump assembly                    | 1 set for 1 000 tractors  |
| ii)           | Pump repair kit                  | 1 set for 200 tractors    |
| iii)          | 'O'-ring service kit             | 1 set for 50 tractors     |
| iv)           | Control valve assembly           | 1 set for 1 000 tractors  |
| v)            | Control valve repair kit         | 1 set for 200 tractors    |
| vi)           | Top and lower links              | 1 set for 1 000 tractors  |
| vii)          | Lifting rods left and right hand | 1 each for 1 000 tractors |
| viii)         | Link pin assembly                | 1 set for 10 tractors     |

**3.1.6 Instruments\***

| <i>Sl No.</i> | <i>Parts</i>                              | <i>Quantity</i>        |
|---------------|-------------------------------------------|------------------------|
| ( 1 )         | ( 2 )                                     | ( 3 )                  |
| i)            | Rev/min and hour indicator, if applicable | 1 set for 500 tractors |
| ii)           | Temperature gauge                         | do                     |
| iii)          | Oil pressure gauge                        | do                     |
| iv)           | Charging indicator                        | do                     |
| v)            | Fuel gauge, if applicable                 | do                     |
| vi)           | Starter switch                            | 1 set for 200 tractors |
| vii)          | Light switch                              | do                     |
| viii)         | Other switch knob                         | 1 set for 100 tractors |

**3.1.7 Electricals\***

| <i>Sl No.</i> | <i>Parts</i>                    | <i>Quantity</i>        |
|---------------|---------------------------------|------------------------|
| ( 1 )         | ( 2 )                           | ( 3 )                  |
| i)            | Generator repair kit            | 1 set for 100 tractors |
| ii)           | Starter repair kit              | 1 set for 50 tractors  |
| iii)          | Bulbs assorted                  | 1 set for 20 tractors  |
| iv)           | Wiring harness                  | 1 set for 100 tractors |
| v)            | Battery cables and other cables | 1 set for 50 tractors  |
| vi)           | Horn                            | do                     |
| vii)          | Light and lenses                | do                     |
| viii)         | Fuses                           | 1 set for 20 tractors  |

**3.1.8 Miscellaneous**

| <i>Sl No.</i> | <i>Parts</i>                                                        | <i>Quantity</i>          |
|---------------|---------------------------------------------------------------------|--------------------------|
| ( 1 )         | ( 2 )                                                               | ( 3 )                    |
| i)            | Nuts, bolts and other fasteners                                     | As needed                |
| ii)           | Break lining kit*                                                   | 1 set for 25 tractors    |
| iii)          | Fuel pipe and connections                                           | 1 set for 50 tractors    |
| iv)           | Hydraulic pipes ( where applicable )                                | 1 set for 1 000 tractors |
| v)            | Air cleaner kit                                                     | 1 set for 500 tractors   |
| vi)           | Customer's kit ( only those components which are not listed above ) | 1 set for 25 tractors    |

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\*Proprietary stocking.

#### **4. PARTS TO BE STOCKED BY THE DISTRIBUTORS/ MANUFACTURERS**

**4.1** The distributors/manufacturers shall be the final custodian of availability of all parts for putting the tractor back into operation as and when needed either directly or through their dealers. Generally all parts should be available at short notice to the dealers or the customers except the one which has been declared by the manufacturer as obsolete. Even in such cases the appropriate part which can be replaced would be suggested and if required provided by the manufacturer/distributor.

# INDIAN STANDARDS

## ON

### AGRICULTURAL TRACTORS AND POWER TILLERS

#### IS :

- 4468-1977 Dimensions for three-point linkage of agricultural wheeled tractors (*first revision*)
- 4931-1977 Power take-off shaft of agricultural tractors (*first revision*)
- 5994 ( Part I )-1979 Test code for agricultural tractors: Part I Terminology and general guidelines
- 5994 ( Part II )-1979 Test code for agricultural tractors: Part II Laboratory and track tests
- 6283-1971 Symbols for operator controls on agricultural tractors and farm machinery
- 6460-1980 Technical requirements for ball and socket assembly for three-point linkage (*first revision*)
- 6483-1972 Linch pin assembly
- 6690-1972 Rotavator blades for power tillers
- 6840-1972 Code of practice for preventive maintenance of agricultural wheeled tractors
- 6847-1972 Code of practice for installation of agricultural wheeled tractors
- 7201-1974 Method of sampling of agricultural tractors and machinery
- 8132-1976 Guidelines for presentation of operator's manual and technical publications for agricultural tractors and machinery
- 8133-1976 Guidelines for location and operation of operator controls on agricultural tractors and machinery
- 8265-1976 Methods of test for power take-off drive shaft guard
- 9164-1979 Guide for estimating cost of farm machinery operation
- 9253-1979 Guideline for field performance evaluation of agricultural wheeled tractors
- 9545 ( Part I )-1980 Drawbar for agricultural wheeled tractors: Part I Link type
- 9869-1981 Technical requirements for power take-off pulley for agricultural tractors with Type 1 PTO shaft