

JIS

JAPANESE INDUSTRIAL STANDARD

Terminology and Commercial Specifications on Tractor

JIS A 8420—1988

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

JAPANESE INDUSTRIAL STANDARD

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Terminology and Commercial Specifications on Tractor A 8420-1988

1. Scope

This Japanese Industrial Standard specifies the terminology and commercial specifications on tractors of self-propelled crawler and wheel types used mainly for earth working and the like, hereinafter referred to as the "tractors".

2. Definitions

For the purpose of this Standard, following definitions apply:

- (1) tractor: Self-propelled crawler or wheeled machine to exert a push or pull force through a mounted working equipment.
- (2) base machine: A tractor without working equipment, and provided with the necessary mountings to secure working equipment shown in 4. This is individually specified according to the commercial specifications of the manufacturer.
- (3) working equipment: A series of components⁽¹⁾ to be equipped with the base machine so as to be used for ordinary work purpose.

Note (1) These mean the parts or their assemblies of the base machine or working equipment.

3. Base Machine

3.1 Type of Tractors The types of tractors shall be divided according to the structure as follows:

- (1) Division by Undercarriage
 - (1.1) Crawler tractor (see Fig. 1)
 - (1.2) Wheel tractor (see Fig. 2)
- (2) Division by Engine Location
 - (2.1) Front engine (see Fig. 3)
 - (2.2) Rear engine (see Fig. 4)
- (3) Division by Steering System
 - (3.1) Front wheel steer (see Fig. 5)
 - (3.2) Rear wheel steer (see Fig. 6)
 - (3.3) Articulated steering (see Fig. 7)

Applicable Standards, Corresponding International Standards and Reference Standards: See page 34.

- (3.4) Wheel skid steering (see Fig. 8)
- (3.5) Crawler skid steering (see Fig. 8)
- (3.6) Crawler right and left independent steer (see Fig. 10)
- (4) Division by Drive System
 - (4.1) Rear wheel drive (see Fig. 11)
 - (4.2) All wheel drive (see Fig. 12)
- (5) Division by Operator's Position (In the Case of Articulated Machine)
 - (5.1) Operator front (see Fig. 13)
 - (5.2) Operator rear (see Fig. 14)

Fig. 1. Crawler Tractor

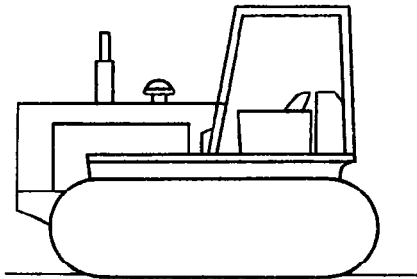


Fig. 2. Wheel Tractor

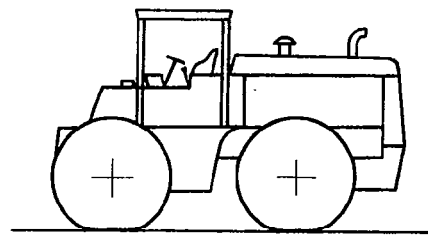


Fig. 3. Front Engine

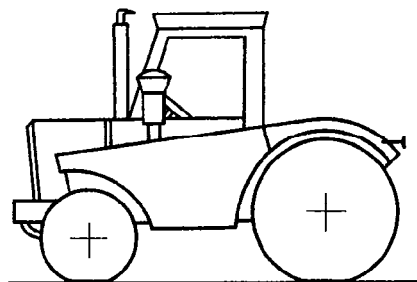
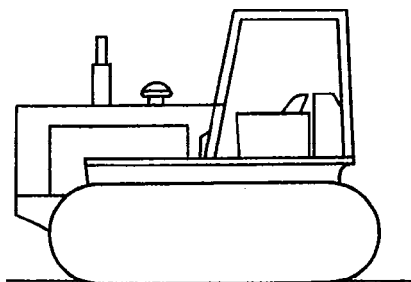


Fig. 4. Rear Engine

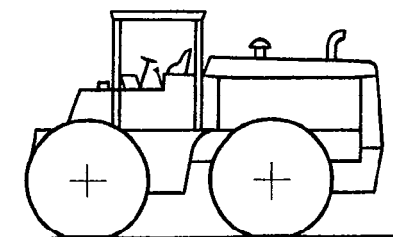


Fig. 5. Front Wheel Steer

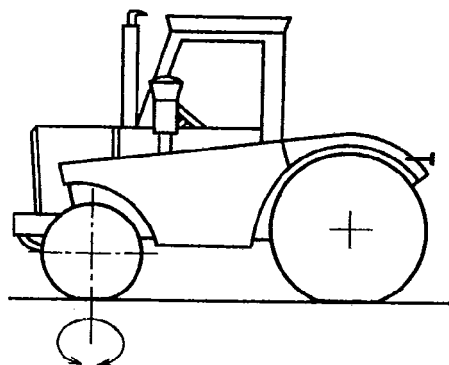


Fig. 6. Rear Wheel Steer

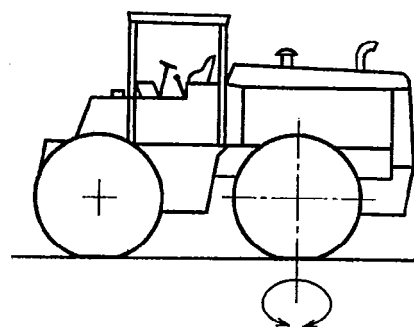


Fig. 7. Articulated Steering

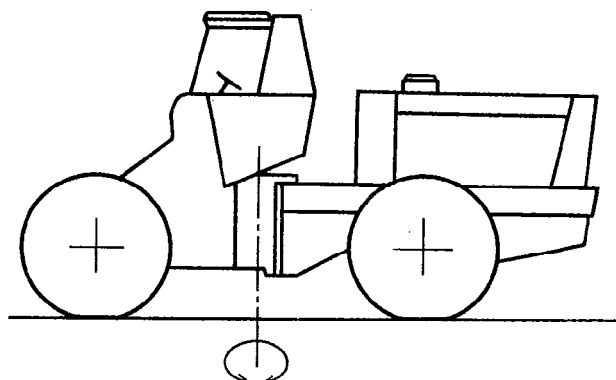
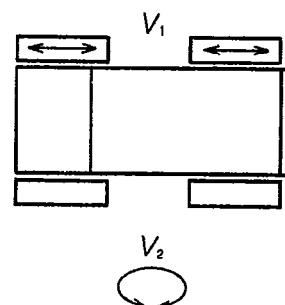
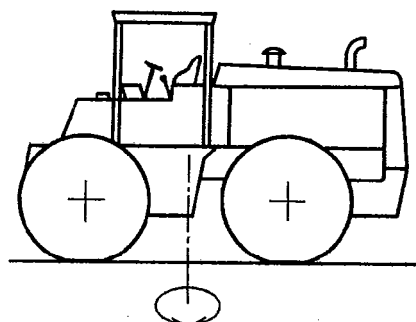


Fig. 8. Wheel Skid Steering



Remark:  steering wheel, steering or operation centre, etc.

Fig. 9. Crawler Skid Steering

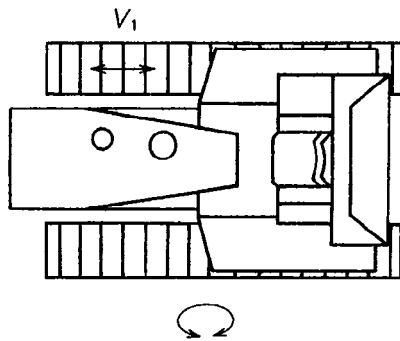


Fig. 10. Crawler Right and Left Independent Steer

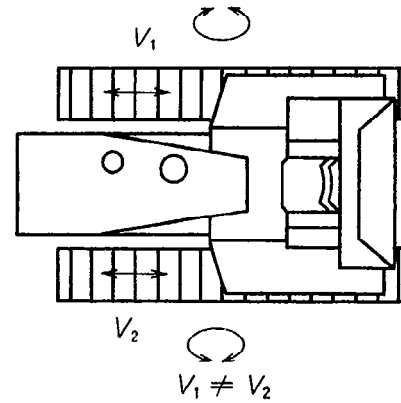


Fig. 11. Rear Wheel Drive

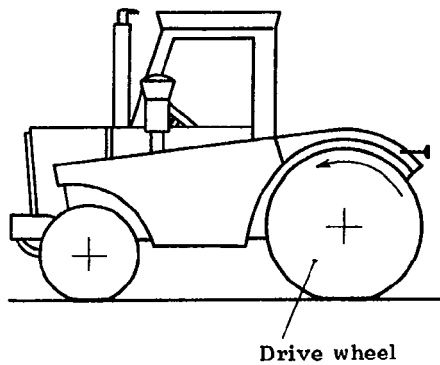


Fig. 12. All Wheel Drive

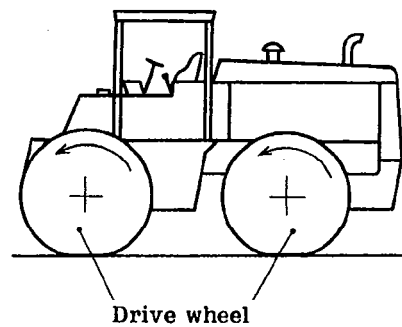


Fig. 13. Operator Front

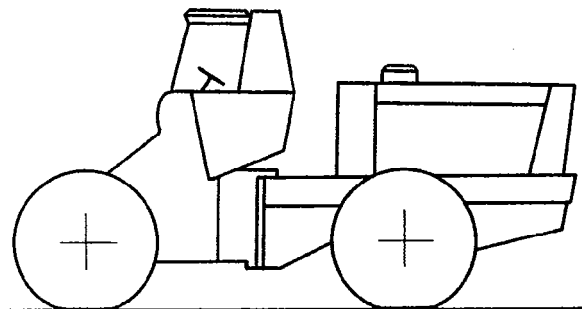
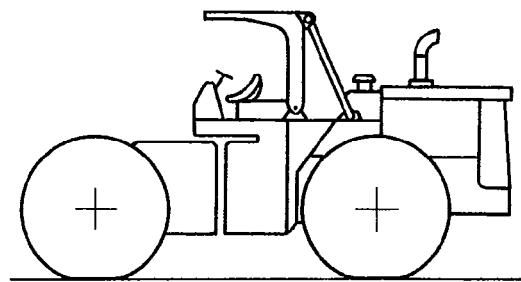


Fig. 14. Operator Rear



3.2 Dimensions The dimensions of base machine shall be marked at least with those shown in Fig. 15 and Fig. 16.

Further, definitions of GRP and dimensions shall be in accordance with Appendix.

Fig. 15. Dimensions of Base Machine (Crawler Tractor)

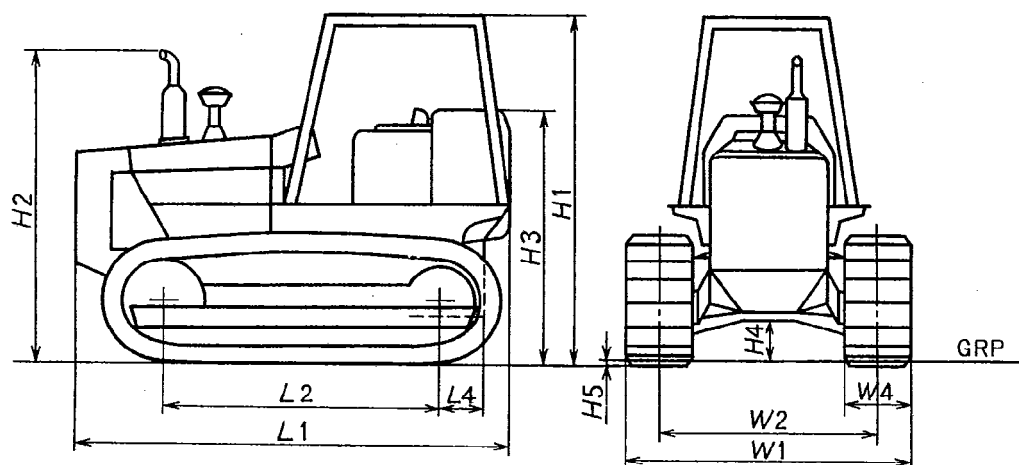
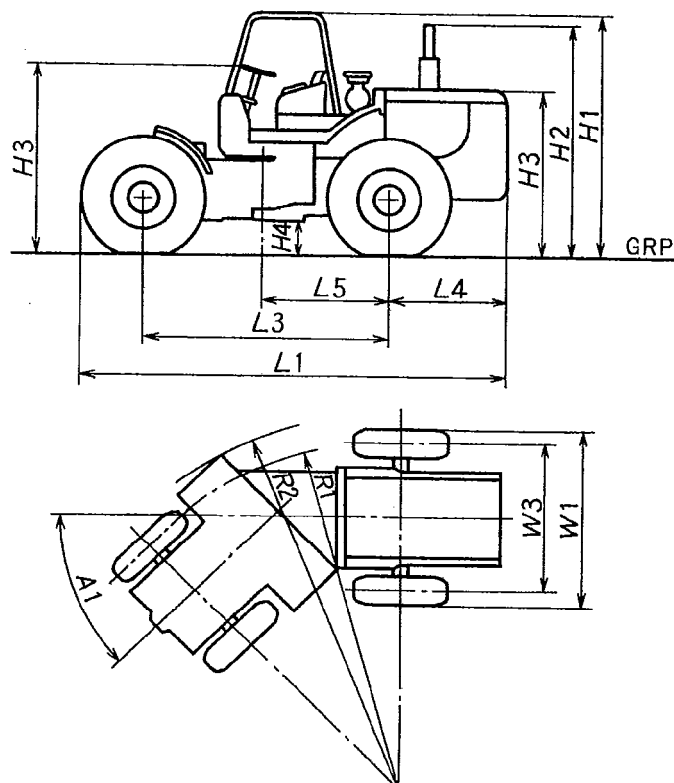


Fig. 16. Dimensions of Base Machine (Wheel Tractor)



3.3 Masses

3.3.1 Operating Mass The mass of the base machine with the work equipment designated by the manufacturer, an operator (75 kg), full fuel tank, and specified amounts of lubricating oil, working oil and cooling water.

3.3.2 Shipping Mass The mass of the base machine without operator, with specified amounts of lubricating oil, working oil and cooling water, 10 % of fuel tank capacity, work equipment, cab, ROPS⁽²⁾ or FOPS⁽³⁾ designated by the manufacturer.

Notes ⁽²⁾ ROPS - Roll-over protective structure.

⁽³⁾ FOPS - Falling object protective structure.

3.3.3 Cab, Canopy, ROPS or FOPS Mass The mass of cab, canopy, ROPS or FOPS with all components required to secure these to the base machine.

4. Work Equipment

4.1 Dozer Equipment The dozer equipment consists of a front blade, its supporting frame, and controls for their positioning and posture.

- (1) **Straight Dozer** The dozer equipment in which the lower end line of cutting edge is so fixed that it is parallel to the X plane⁽⁴⁾ (see Fig. 17).

Note ⁽⁴⁾ It is in accordance with 1.2 (2) of Appendix.

- (2) **Angling Dozer** The dozer equipment having a such blade that the angle of the lower end line of cutting edge may be changed relative to X plane⁽⁴⁾ (see Fig. 18).

Fig. 17. Crawler Tractor with Straight Dozer

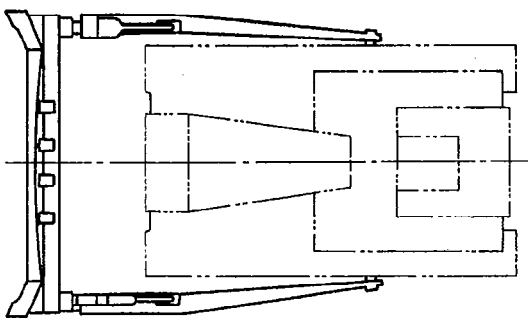
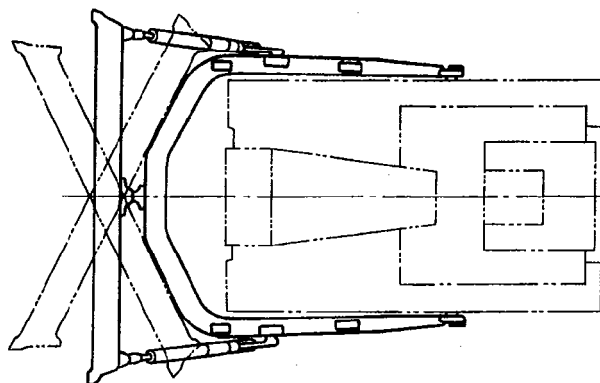


Fig. 18. Crawler Tractor with Angling Dozer



- (3) Function of Straight Dozer and Angling Dozer The straight dozer and angling dozer can have the following function:

(3.1) Tilt Such function that the angle of the lower end line of cutting edge may be changed relative to Z plane⁽⁵⁾ (see Fig. 19).

Note ⁽⁵⁾ It is in accordance with 1.2 (3) of Appendix.

(3.2) Pitch Such function that the upper portion of the blade can be rotated around a parallel axis to the lower end line of cutting edge as the centre (See Fig. 20).

- (4) Blade Operation System The operation of blade shall be carried out by oil hydraulic cylinder by oil hydroaulic type.

Fig. 19. Tilt

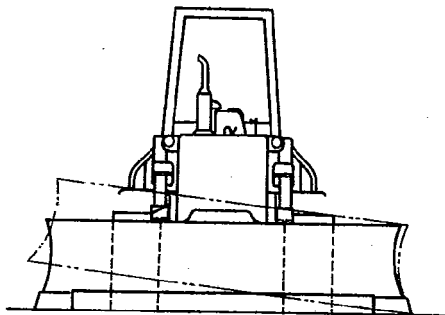
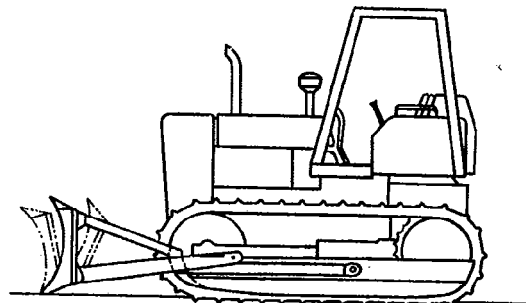


Fig. 20. Pitch



4.2 Ripper The equipment connected to the rear part of the base machine by means of a mounting bracket. It is equipped with one shank or more, and one of the following three types.

- (1) Radial Type The ripping angle of the tooth tip to the ground varies according to change of the working depth (see Fig. 21).
- (2) Parallelogram Type The ripping angle of the tooth tip to the ground remains constant regardless of variation in working depth (see Fig. 22).
- (3) Variable Type The ripping angle of the tooth tip to the ground can be changed optionally by the operator (see Fig. 23).

Fig. 21. Radial Type Ripper

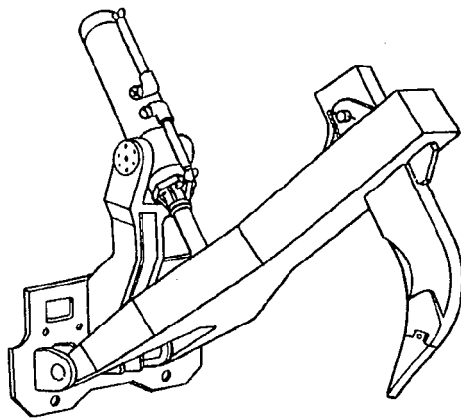


Fig. 22. Parallelogram Type Ripper

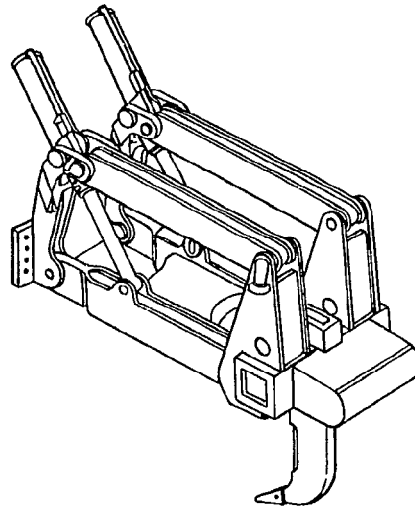
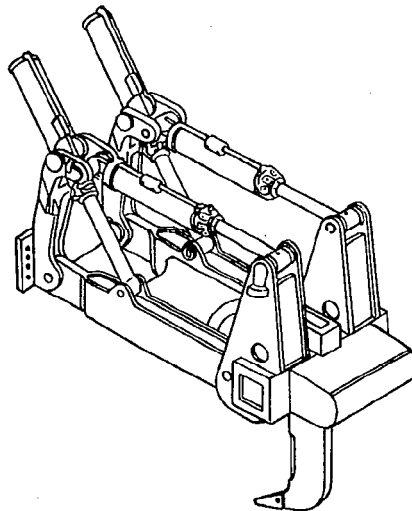


Fig. 23. Variable Type Ripper



4.3 Winch The cable type winch connected to the rear part of the base machine.

As regards the winch operation, there are following two types:

- (1) **Manual Type** The type of which drive is performed by manual clutch and brakes.
- (2) **Power Type** The type of which drive is performed by clutch and brakes of oil hydraulic drive or work.

4.4 Swinging Drawbar The drawbar equipment mounted to the rear part of the base machine, and provided with a swing selector bar and a drawbar.

4.5 Dimensions The dimensions of work equipment shall be marked at least with those shown in Figs. 24, 25, 26, 27 and 28.

Furthermore, the definitions of GRP and dimensions shall be in accordance with Appendix.

Fig. 24. Dimensions of Dozer (Crawler Tractor)

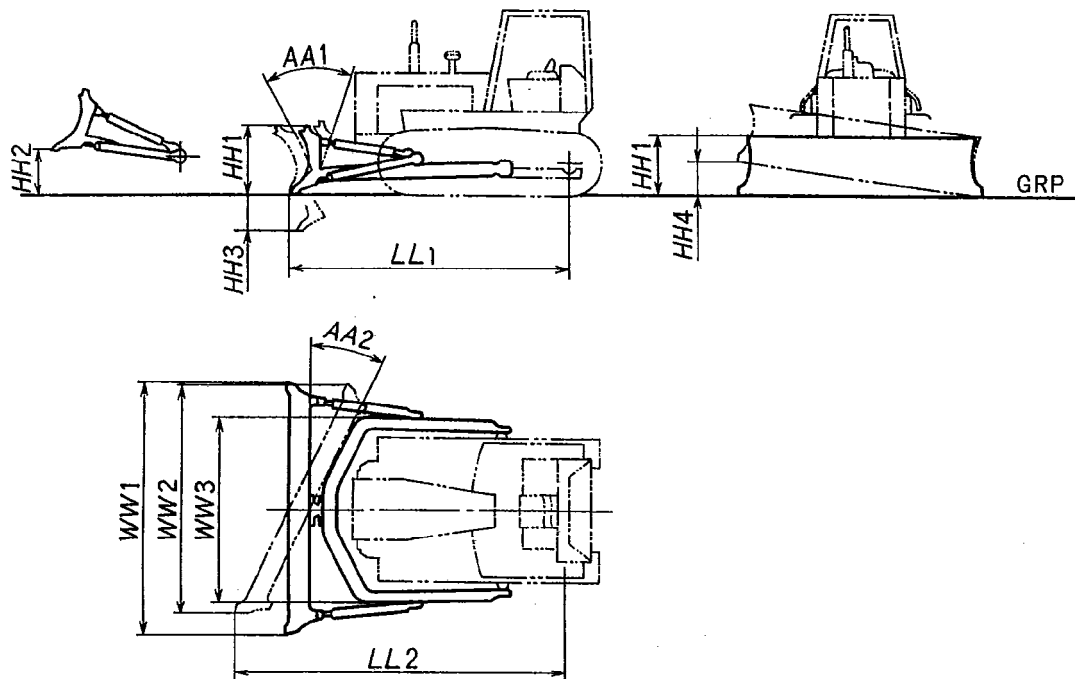


Fig. 25. Dimensions of Dozer (Wheel Tractor)

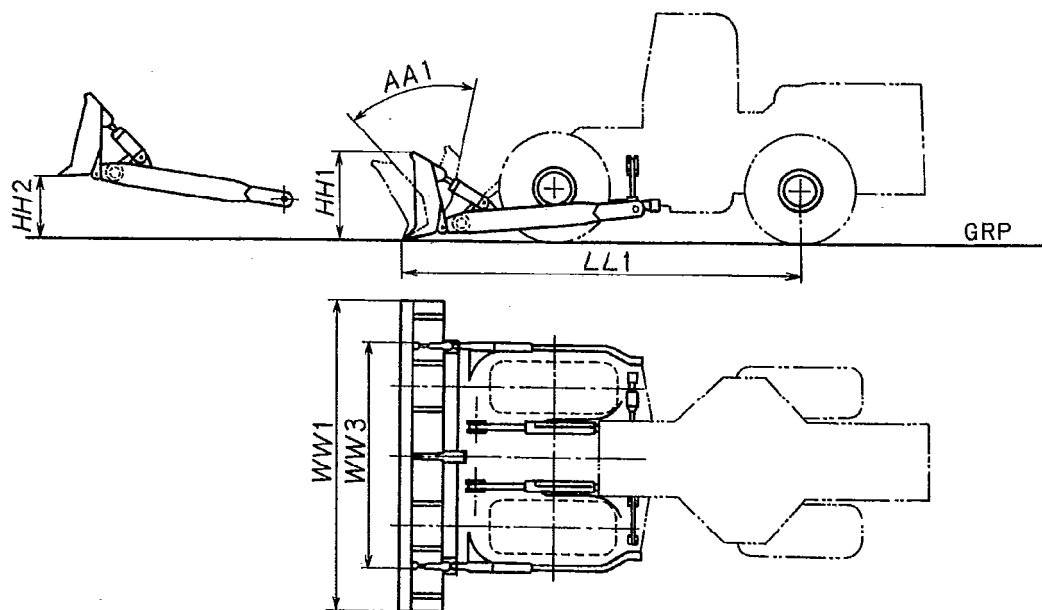


Fig. 26. Dimensions of Ripper

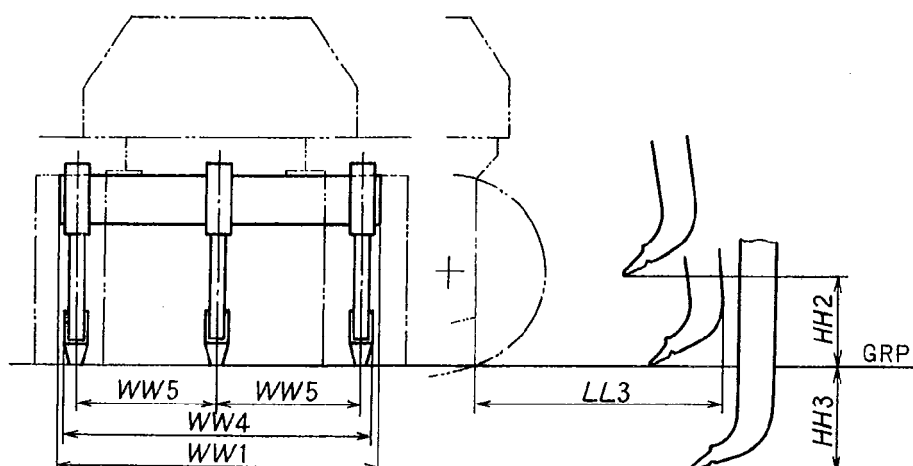


Fig. 27. Dimensions of Winch

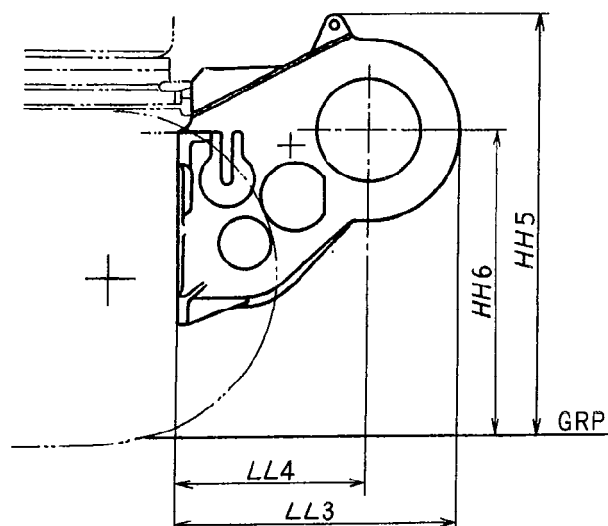


Fig. 28. Dimensions of Swinging Drawbar

