

## VII. SPECIAL TRACTOR EQUIPMENT

### (1) General

The versatility of tractors is increased by equipping them with additional units. Tracked tractors, for example, can by an expert be equipped with a pusher-blade or wheeled tractors with a rope winch. The latter is very useful in loading timber and saves labour. Moreover, a trailer coupling is required again and again and thus included in the indispensable equipment. It is used to couple trailers of various designs quickly and safely to the vehicle.

In agriculture the implement coupling is the prerequisite of a rational operation of tractors. By means of this coupling tractors of various types can be employed for tilling, cultivating and harvesting work throughout the year. It must always be kept clearly in mind that, by coupling heavy agricultural implements with different transport and working positions to the tractor, the centre of gravity is displaced. With carelessly coupled implements this may lead to a state where the front wheels of the tractor no longer have a sufficient ground adhesion so that a safe running and steering becomes impossible.

Different working depths, such as involved in ploughing, and the changing-over from working to transport positions originally required two operators. While the tractorist was exclusively concerned with operating the tractor, a second worker was required for operating the coupled implements.

Great strides ahead were made and the economy of operation increased by the introduction of the single-operator system. Prerequisite to this were the development of devices which enabled the careful handling of both the tractor and the coupled implements.

Further provisions had to be made to enable the implements to be mounted on and dismounted from the tractor by a single person. Small implements to be mounted can be lifted by hand, whereas large and thus heavy implements require a power-operated lifter which normally is hydraulically operated and actuated by means of a control handle from the driver's seat.

### (2) Trailer Couplings

#### (a) Simple Trailer Coupling

Fig. 299 shows a simple trailer coupling. The pole of a trailer is retained by a cotter pin which is locked by a wire hook so that it cannot slip out. During driving the coupling is continuously exposed to pushing forces exerted by the