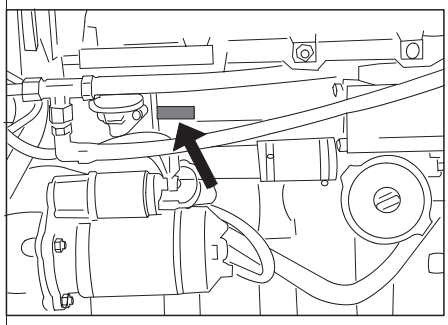
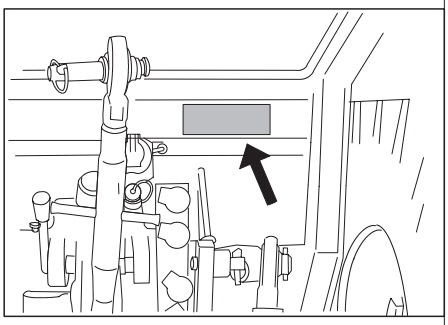
A. Detailed table of contents

Operator's manual 600–900

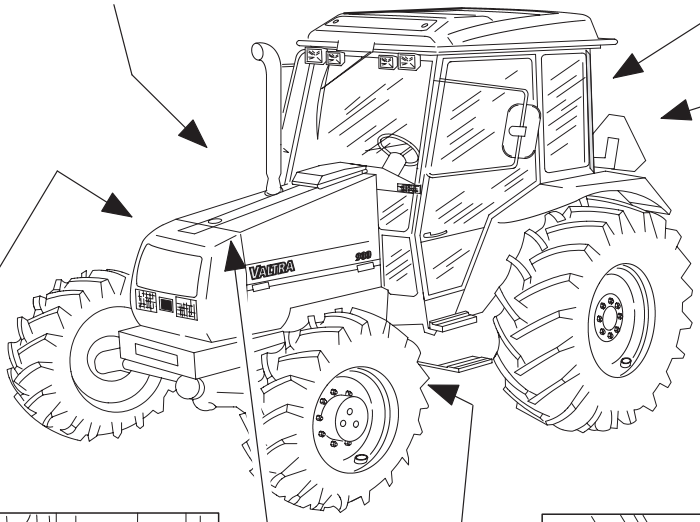
Serial numbers of your tractor

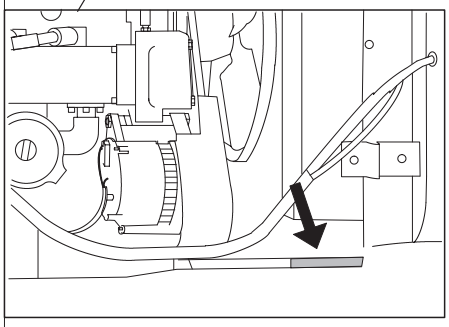


Engine number . . . . . .

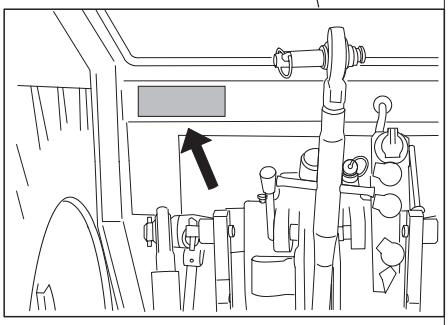


Type plate EEC . . . . . .

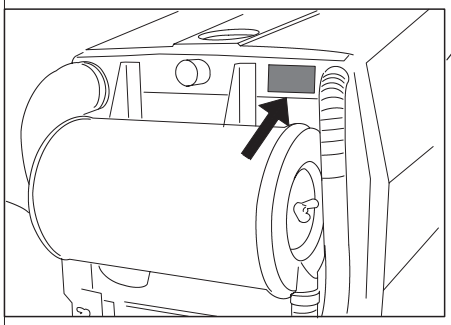




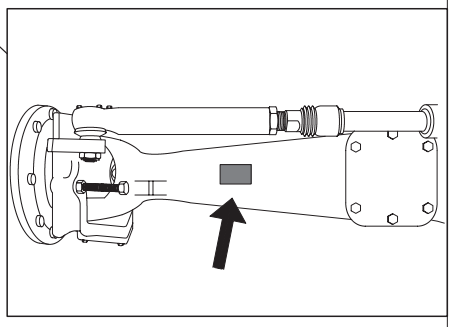
Tractor number . . . . . .



Cab number . . . . . .



Type plate (on some marketing areas) . .



Powered front axle number . . . . . .

69–1,6

C 2. Service

In order to function satisfactorily the tractor must be properly maintained.
The necessary daily lubrication and routine checks, can, of course, be carried out by the driver.

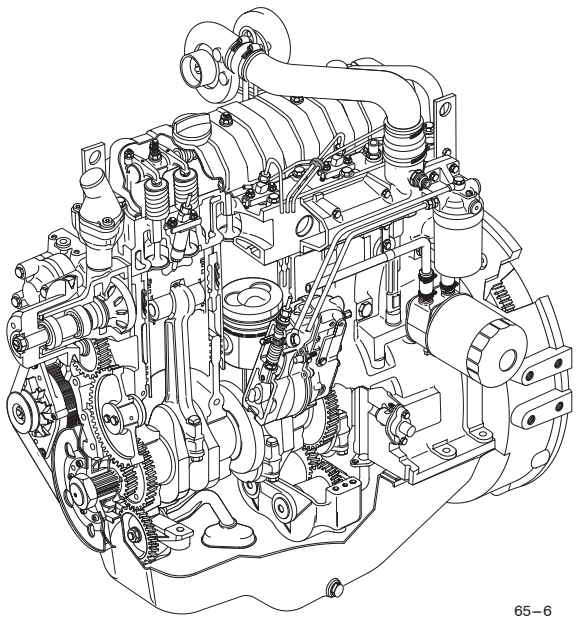
Where adjustments and repairs are necessary which require the attention of a qualified mechanic and the use of special tools, it is advisable to rely on a workshop. In this case we advice you to consult your local dealer as to how your tractor should be looked after as he is in a position to give you the best possible service. Through service bulletins and special training courses he is kept constantly informed of the factory's recommendations regarding care of the tractor.

C 2.1. Cost–free service

Before leaving the factory the tractor was thoroughly tested and adjusted to ensure it is in first-class condition when delivered to you.

However, it is important that the tractor is given further checks during the first period of operation. Bolts must be checked for tightness, various settings inspected and other minor adjustment made. Your dealer therefore gives one cost–free service inspection (excluding oil and filter costs) after 100 hours running.

C 3. Engine



65–6

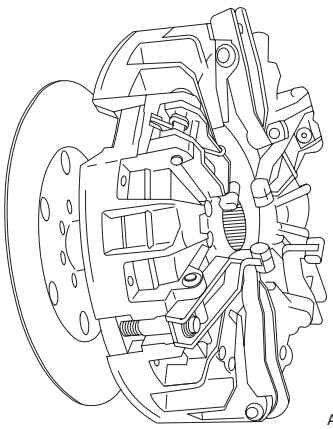
Tractors 600 and 700 have engines of the 320 series and tractors 800 and 900 have engines of the 420 series.
The tractors have 4–stroke direct injection diesel engines:
Three–cylinder engine, normally aspirated;
–600
Three–cylinder engine, turbocharged;
–700
Four–cylinder engine, turbocharged;
–800, 900

The principle of the turbocharged engine is that exhaust gases from the engine cylinders drive the turbo unit which forces air into the cylinders. This means that a higher power output can be obtained with economical fuel consumption.

The engine induction air passes through the air filter and a safety filter inside the air filter. The air intake system has an effective ejector pre–separator system, most of the impurities are removed before they reach the filter by the exhaust fume flow. The safety filter prevents the engine from being damaged if the main filter fails.
These new 20–series engines have lower fuel consumption and cleaner exhaust gases.

C 4. Power transmission

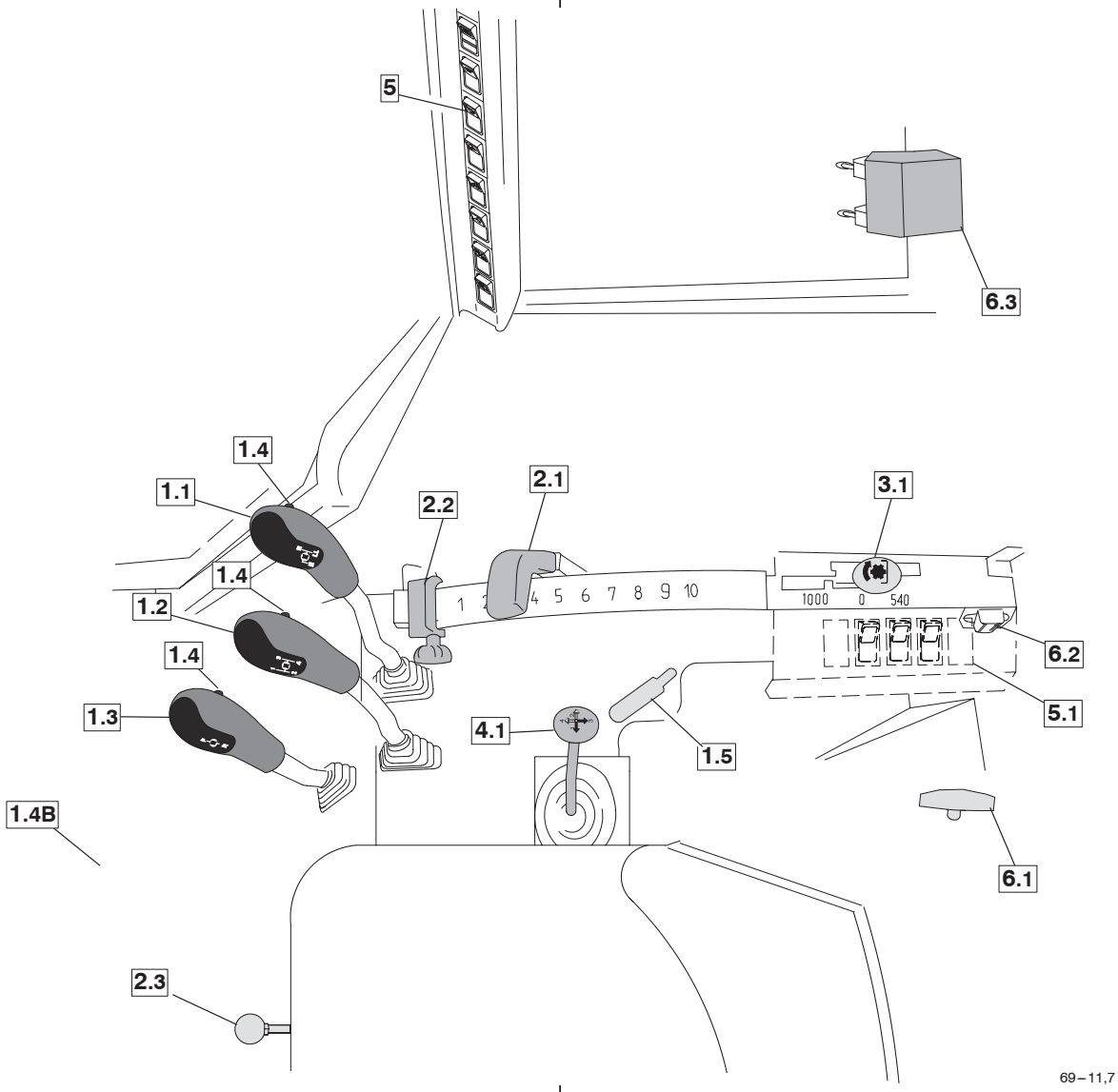
C 4.1. Clutch



A3565–17

The clutch is of the twin type and is attached to the engine flywheel. There are separate discs for the propulsion clutch and power take–off. Both clutches are operated mechanically independently of each other, the propulsion clutch being controlled by means of a pedal and the power take–off clutch with a lever.The clutch plates are both axel– and rad springed.
As extra equipment the push buttons for HiShift are available, making driving easier so there is no need to use the foot clutch pedal. Traditional use of clutch pedal is, however, always possible.

D 1.3. Controls on right hand side



Driving 1 for more detail see page 35

1.1 Range gear lever
1.2 Speed gear lever
1.3 Forward/reverse gear lever, alternative equipment on the left side.
Overdrive lever as alternative equipment.
1.4 Switch for HiShift, extra equipment
1.5 Differential lock

Rear linkage (mechanically controlled hydraulic lift) 2 for more detail see page 38

2.1 Position control, hydraulic lift
2.2 Locking device of position control lever
2.3 Lowering speed control

Rear power take–off 3 for more detail see page 38

3.1 Selector lever, power take–off

Auxiliary hydraulic 4 for more detail see page 39

4.1 Auxiliary hydraulic valve lever

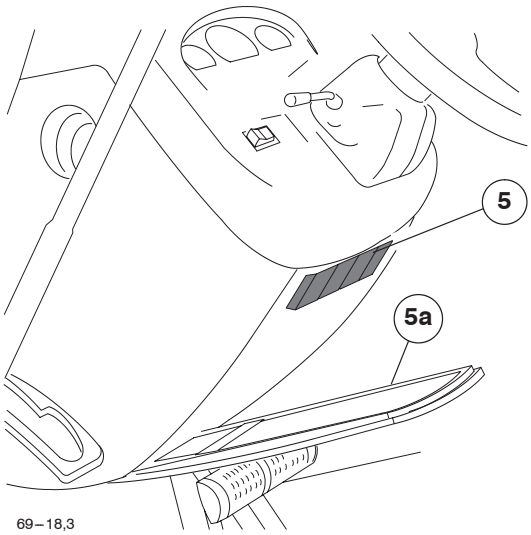
Side pillar control panel 5 see point “Side pillar control panel” on page 24

If the tractor is equipped with a lot of extra equipment there might not be enough space for all the switches on the side pillar, In this situation, the rest of the switches are located on the extra housing (**5.1**) beside the PTO selector lever.

Other controls 6 for more detail see page 39

6.1 Trailer hitch release control, extra equipment
6.2 3 pin power socket
6.3 Openable side window handle, on both sides

D 2.1.5. Fuse box, place for books (5)



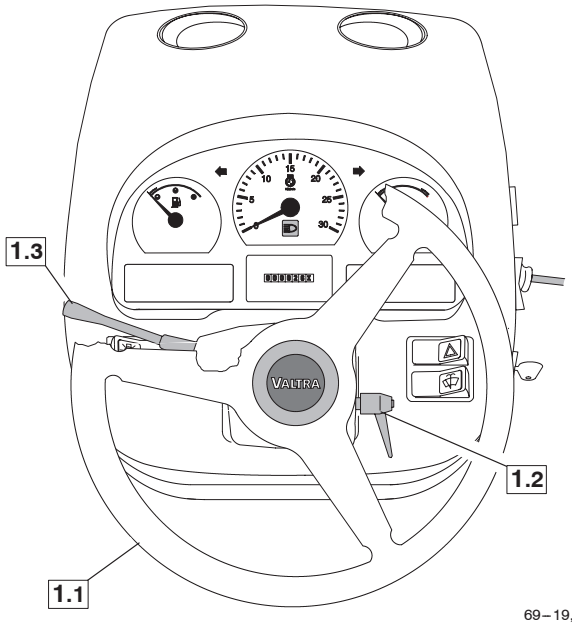
On the openable cover there is also a place (**5a**) for books.
The fuses are rated at 5 A (6 off), 10 A (3 off), 15 A (6 off), 20 A (3 off) and 25 A (2 off), (nominal current rating). A blown fuse indicates a fault condition, which should be traced and repaired. Fuses must not be replaced with ones of a higher rating, since this may cause damage to the electrical equipment.

Fuses, see Checks and Adjustments on page 88.

D 2.2. Instrument panel

D 2.2.1. Front panel of instrument panel (1)

D 2.2.1.1. Steering wheel (1.1)



IMPORTANT: Do not hold the front wheels at full steering lock for long periods as the oil temperature quickly rises increasing the risk of damage to the pump. If the oil supply from the hydraulic pump should fail for any reason, the tractor can still be steered manually with the steering wheel.

At full–lock it is possible to force the steering wheel further manually. This slip of the steering wheel, also noticeable when driving across a slope, is normal and is caused by an internal flow of oil for lubrication of the steering valve.

CAUTION: If a malfunction occurs in the steering system the tractor should be stopped and the malfunction corrected before restarting.

D 2.2.1.2. Steering wheel adjustment (1.2)

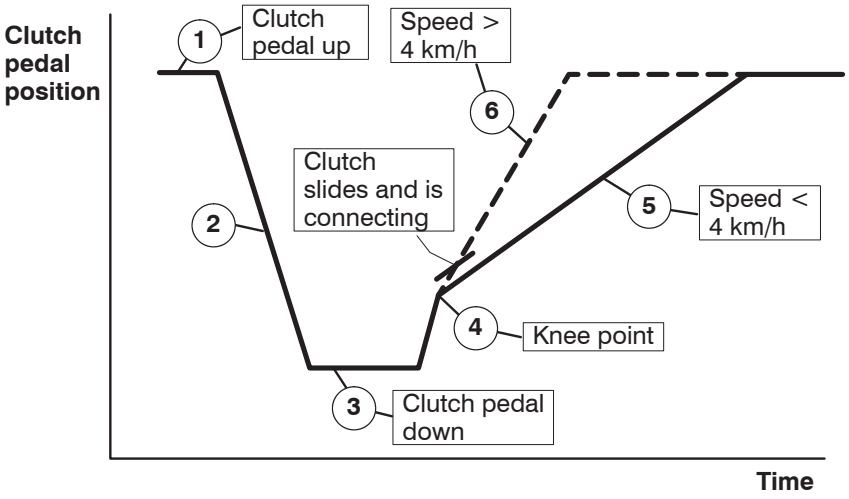
The steering wheel can be adjusted to different driving positions by first opening the lock. After adjusting tighten the lock.

DANGER: Do not adjust steering wheel position while driving.

D 2.2.1.3. Full/dipped–beam headlights, direction indicator flashers and horn (1.3)

Full/dipped–beam headlights: Pull the lever under the steering wheel to dip/main beam the headlights.
Left/right flashers: Lever moved backwards/forwards.
Horn: End of lever pressed in.

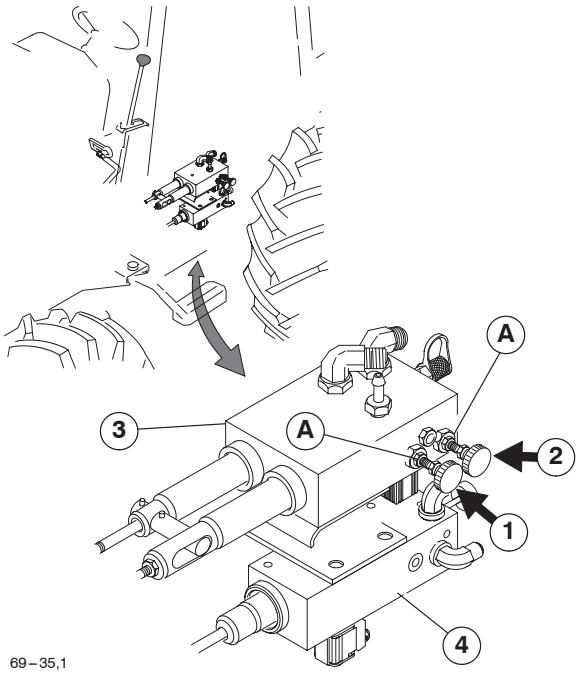
a2 **HiShift clutch adjustment**



The attached picture shows the function of the HiShift clutch and the influence of the adjustment. The curve shows the clutch pedal position according to time.

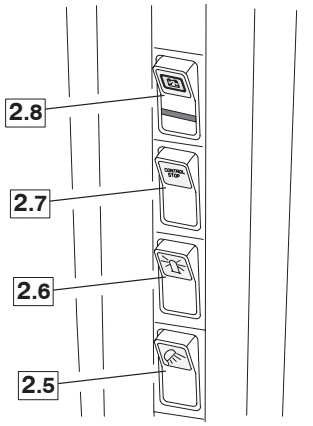
– The clutch pedal is up (**1**)
– The HiShift push button is pressed, the clutch pedal goes down quickly (**2**)
– The clutch pedal is down, the desired changing movement is completed (**3**)
– The push button is released, the clutch pedal rises quickly to the point when the clutch begins to engage (knee point), this point has been preset in the factory (**4**)
– If the speed is below 4 km/h then the pedal rises slowly (lower curve) (**5**)
– If the speed is more than 4 km/h then the clutch pedal rises quicker (the upper curve) (**6**)

When necessary the clutch pedal rising speed after the Knee Point (the clutch engagement point) can be adjusted in the following way:



The valve plate, where the adjustment is done, is situated on the left side of the centre frame (= fuel tank).
If the tractor is equipped with both the HiShift drive clutch and with the HiShift switch of the rear PTO, the highest valve plate (**3**) is for the drive clutch and the lowest (**4**) for the PTO switch.

D 2.4.2.5. **Switch for rear working lights (2.5)**



69–31,4

The parking lights or full/dipped–beam headlights must be switched on when using the working lights.

D 2.4.2.6. **Switch for rotating warning light (2.6)** (extra equipment)

D 2.4.2.7. **Control stop switch (2.7)** (extra equipment)

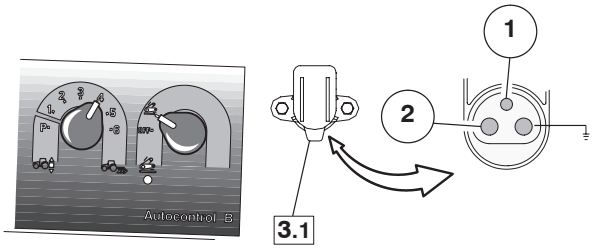
The operating instructions for the control stop switch are under “Extra equipment” (in section K) on page 115.

D 2.4.2.8. **Electric main circuit switch (2.8)** (extra equipment)

The operating instructions for the electric main circuit switch are under “Extra equipment” (in section K) on page 115.

D 2.4.3. **Other controls (3)**

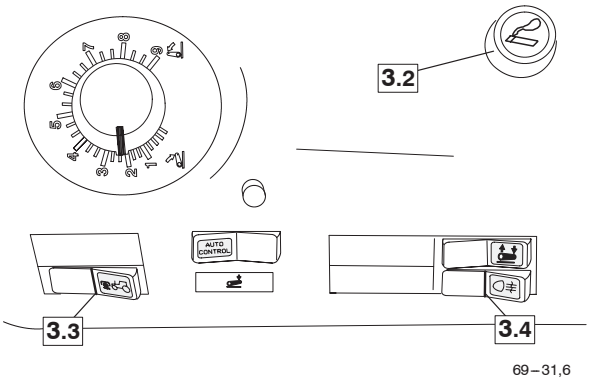
D 2.4.3.1. **3–pin power socket (3.1)**



69–31,5

The socket (**3.1**) is of the 3 pin, type ISO/TR 12369. Current (DC) can be taken for various devices, (**1**) 5A through the ignition switch, and 25A (**2**) from the battery, for use by the implement(s) etc. The male connector part number is 33615500.

D 2.4.3.2. **Lighter (3.2)**



69–31,6

Extra equipment, also for mechanical linkage model.

D 2.4.3.3. **Switch for front PTO (3.3)** (extra equipment)

The operating instructions for the front power take–off are under “Extra equipment” (in section K) on page 116.

D 2.4.3.4. **Switch for rear fog light (3.4)** (extra equipment)

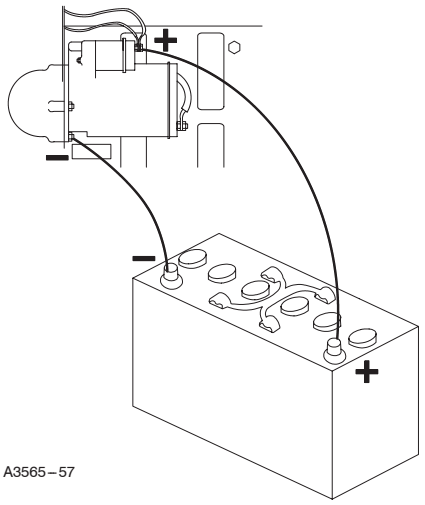
Standard in some marketing areas.

E 2.3. Starting aerosol

NOTE: Use of a starting aerosol is not recommended. Large doses can damage the engine and the warranty does not cover any damage caused in this way.

WARNING! Starting aerosol must not be used for engines with pre–heating coil as this combination may cause an explosion.

E 2.4. Starting with auxiliary batteries (jump starting)



A3565–57

– Check that the auxiliary batteries have the same voltage as the standard battery.
– Open the battery plugs to avoid risk of explosion

–WARNING: A fully charged battery connected directly to a dead battery can cause a current surge which can cause the batteries to explode.
The correct procedure is as follows:

– Connect one of the jump leads from the positive terminal on the auxiliary battery to the positive terminal on the starter motor and then connect the other jump lead from the negative terminal on the fully charged battery to ground on the machine, e.g. the starter motor attaching bolt or frame member close to the starter motor.
– When the engine has started, **first remove the jump lead** between ground on the machine and the negative terminal on the auxiliary battery. Then remove the jump lead between the positive terminals.

Start the engine using the ignition switch. Always follow the correct procedure. Never try to start the engine by short-circuiting leads.

Having started the engine, declutch, select the correct gear, and release the parking brake. Steadily increase the engine speed, and release the clutch pedal slowly.

E 3. Driving

– In cold conditions warm the engine to normal operating temperature before applying any loading. Remember that there is heavier wear on the engine when running cold than at normal operating temperature.
– Keep an eye on the warning lamps and gauges.
– Never stop the engine immediately after a hard working shift. Allow the engine to idle for a few minutes so that the temperature falls.
– Lower the implement.
– Stop the engine and turn the ignition switch to the ”O” position.
WARNING! Never turn off the current before the engine has stopped.
– Fill up the fuel tank when finishing work for the day in order to prevent condensation.

E 3.1. Changing gear

Select the ratio which gives the optimum fuel consumption without overloading the engine and the transmission. Bear in mind at the same time that soil conditions can vary within a matter of a few yards in the same field. Select a ratio which allows the engine to operate comfortably at about 75 % of its maximum power.

The highest velocities of the individual gears, see speed ranges (page 101).

To change to neutral while the engine is running use the gear lever, not the range lever. This minimizes the number of gears that remain engaged.

Electrohydraulic clutch, HiShift (extra equipment), using and functioning, see page 36.

different lateral positions for the lower links can be obtained. If the pins are fitted in the long holes, the lower links have a floating position in the lateral direction.

F 3.3. Telescopic lower links

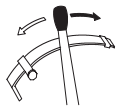
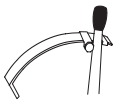
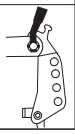
When **connecting** an implement, pull from the link (**B**), then the lower link will move to the floating position. After disconnecting the lower link will lock when lifting the implement.

When **disconnecting** the implement, pull the link (**B**) and turn 1/4 turn (implement lifted up). Lower the implement and move the tractor forward a few centimeters, this will put the lower links in the floating position and allow the implement to be disconnected easily.

CAUTION: Turn the links anti-clockwise to the down position when connecting the implement.

F 4. Using the hydraulic lift

F 4.1. Using the mechanically controlled hydraulic lift

<table>
<tr><td colspan="2">Position control</td><td>Locked at the top position</td><td>Lowering speed</td></tr>
<tr><td>Lowering Lift
  </td><td>Locked
  </td><td>Operating lever at the lock position
  </td><td>Slow
Normal
  </td></tr>
<tr><td>Draft control</td><td>Plough/plow, harrow</td><td colspan="2" rowspan="2">Lower the implement and stop the engine when you leave the tractor</td></tr>
<tr><td>Working depth
  </td><td>Free
  </td></tr>
</table>

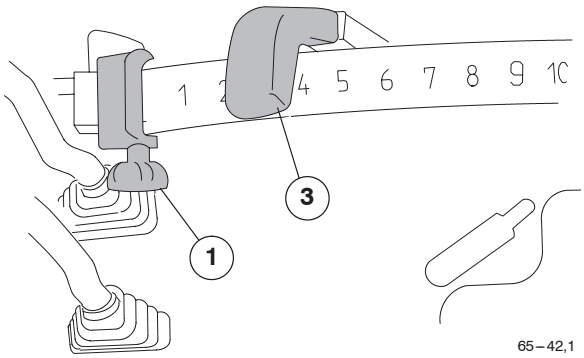
A3565–66

The hydraulic lift is operated by means of:

– Position lever
– Draft control sensitivity (by changing the place of the top link)
– Lowering speed control

DANGER: When transporting tractor mounted implements it is essential that the check links of the lower links are locked with the cotters.

F 4.1.1. Position lever



65–42,1

Move the lever (**3**) backwards to raise the lower links and forwards to lower them. When the position lever is set in an intermediate position, the lower links move to a corresponding height.

NOTE: Lock the position control lever with locking device (1) in the rearmost position (lower links at top) when transporting an implement mounted on the three–point linkage.

When working with **position control** only the pawl for the top link bracket (impulse sender pawl) should be **in the locked position** (lever in horizontal position).

The position control is used when working with tractor–mounted machines (mowers, centrifugal broadcasters, plant sprayers etc).

With the limiter (**1**) of the position control lever (**3**) the lower links can always be lowered to the same position.

F 4.1.2. The floating position

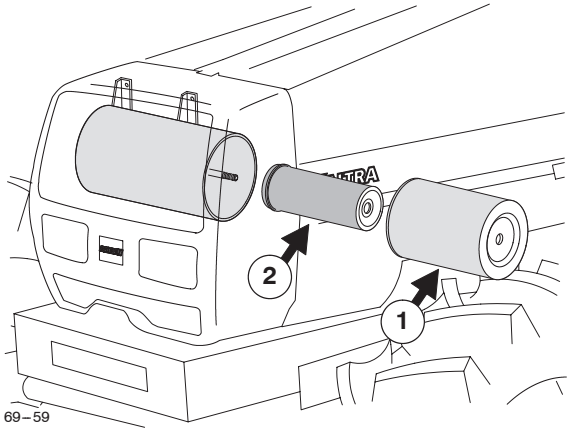
The floating position is used when working with implements which are provided with support wheels or similar. Push the position lever forward as far as it will go, when the lower links and working implements can move freely up and down.

H. Periodic maintenance

H 1. General

Periodic maintenance for the extra equipment are in section K, after each extra equipment.

H 1.1. Air filters



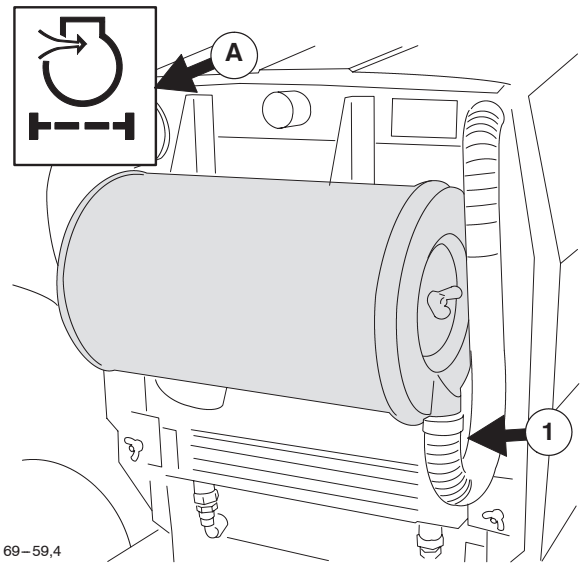
Change air filter (1):

– At least once a year
– After every 1000 hours
– After 5 cleanings, when the warning light of the air cleaner has illuminated 5 times

Change safety air filter (2):

– At least once a year
– After every 1000 hours

Unless it is necessarry do not open the cover of the air cleaner housing. Only associated with the situations mentioned before. During the maintenance check, that the cover of the housing, pipes and unions are in good condition.



A low–pressure indicator with a warning lamp is connected to the air cleaner. When the lamp (**A**) lights up on the instrument panel, the filter must be cleaned. If the warning light illuminates quickly in dusty conditions, check the ejector pipe (**1**) is fitted properly (800, 900), the models 600 and 700 have dustvalves.

Cleaning:

– Always stop the engine before cleaning. A blockage of the air filter is indicated by a change of the engine beat, smoky exhaust and reduction of engine power.
– Check the inside of the air cleaner housing and the inlet pipe. Dirt on these parts indicates that the filter element is defective or has not been fitted properly.
– Clean the filter element with compressed air, max. pressure 500 kPa, or with an effective vacuum cleaner.

NOTE: The filter element must not be cleaned more than 5 times, after which it must be replaced. The filter must be changed every 1000 hours in accordance with the maintenance requirement: – change of the safety filter.

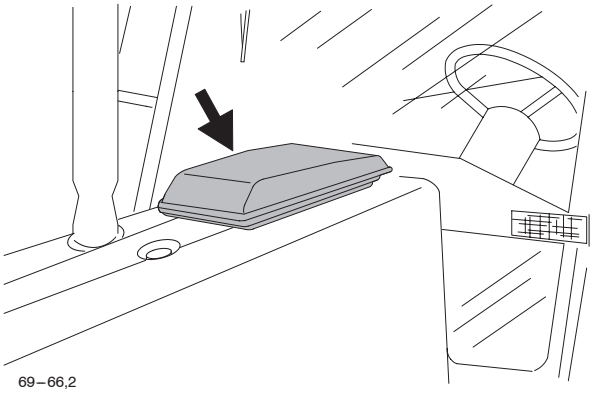
– Hold up the filter element against the light (or shine a flashlight through the centre hole) and inspect the element.
– If any holes are noticed the filter element must be changed.

Filters fitting, see maintenance point 32 on page 79.

H 4. Maintenance every 250 hours

H 4.1. Clean cab air filter and also upper filter (extra equipment) (10)

Clean lower filter

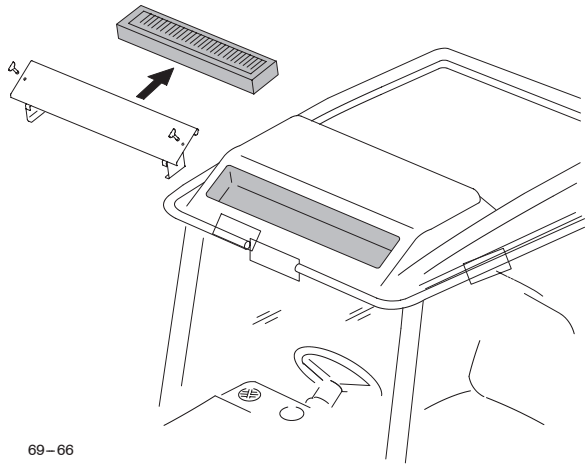


69–66,2

– Lift up the filter housing cover (rear part first)
– Remove the filter element and knock it with the palm of the hand, use a vacuum cleaner from the direction air goes in or blow it clean with compressed air from the centre outwards. Make sure that the air pressure is not too high. Check the condition of the filter. Always change a damaged filter.
– Refit the filter element.

NOTE: The air filter element does not remove chemicals from the outside air.

Clean upper filter (extra equipment)

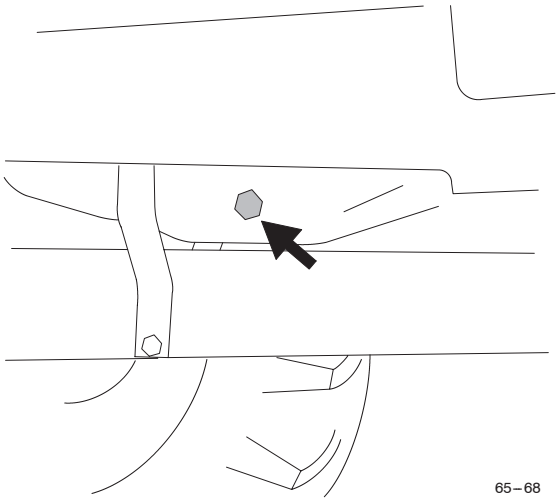


69–66

Remove the air cleaner housing from the front part of the roof and service as for the lower filter.

H 4.2. Change engine oil and engine oil filter (11)

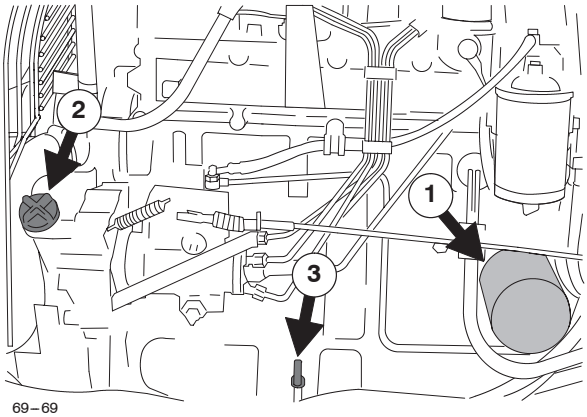
H 4.2.1. Draining



65–68

Remove the drain plug and allow the oil to run out into a suitable container. Drain the oil while the engine is warm (makes draining quicker particularly in cold weather). Clean the plug and replace it.

H 4.2.2. Changing oil filter



69–69

– Remove the oil filter (**1**) by unscrewing it
– Wipe off the oil which has run out on the chassis
– Oil the new gasket
– Tighten the new filter by hand (not too hard).

H 4.2.3. Crankcase ventilation

When changing the oil always check that the ventilation pipe is clean and not blocked.

J 3. Tyres/tires (alternative tyre /tire equipment (pairs))

4WD					
Rear	**Front**	**600**	**700, 800, 900**	**Long lower links**	**Fixed discs**
16.9–30/8	11.2–24/8	x	x		
16.9R30	12.4R24	x	x		
18.4R30	13.6R24	x	x		
480/70R30	360/70R24	x	x		
420/85R34	340/85R24	x	x		
16.9–34	13.6–24	x	x		
16.9R34	13.6R24	x	x		
460/85R34	380/85R24	x	x		
18.4R34	14.9R24		x	x	
18.4–34	14.9–24		x	x	
480/70R34	380/70R24	x	x	x	
520/70R34	420/70R24		x	x	
540/65R34	440/65R24	x	x	x	
340/85R38	340/85R24	x	x		
13.6R36	12.4R24	x	x		
13.6–36	12.4–24	x	x		
13.6R38	13.6R24	x [1)]	x		
13.6–38/8	13.6–24/8	x	x		
14.9R38	12.4R28		x		
230/95R48	230/95R32	x	x		
13.6R24/12IND	275/80R18	x	x		x
16.9R34IND	13.6R24/IND	x	x		x
18.4R34/IND	14.9R24/IND		x		x
16.9–34/14FOR	13.6–24/10FOR	x	x		x
18.4–34/14FOR	14.9–24/14FOR		x		x

[1)] Not all tyres/tires marks

Always contact your dealer to ensure the correct ratio is used.
When adjusting track widths or changing tyres/tires the turning angles must be checked/adjusted with maximum turning angles on both sides of the axle.

J 3.1. Tightening torques, wheel nuts

Front wheels, 2WD . . . . . 130 Nm
Front wheels, 4WD . . . . . 300 Nm
Rear wheels . . . . . 550 Nm
Rim/wheel disc, front and rear . . . . . 310 Nm

J 12. Wiring diagram, component list (Wiring diagram on pages 110–112)

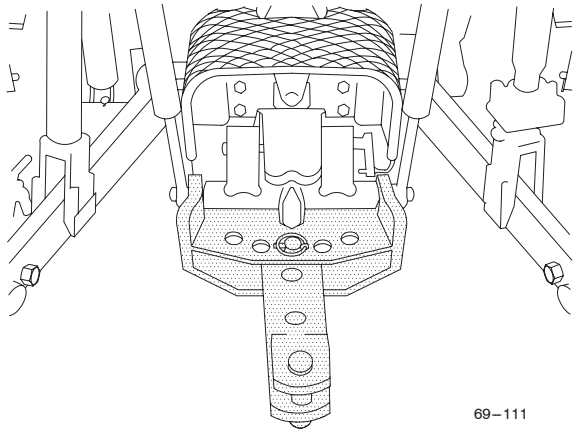
Component list number 33202100 L

Optional or alternative equipment listed in brackets

Sym-bol	Component	Code no
A1	Current screw, cabin supply	1
(A2)	Radio	38
(A3)	Controller, front PTO	22
(A5)	Air suspension seat	32
B1	Sensor, engine temperature gauge	8, 59
B2	Sensor, fuel gauge	9
(B3)	Sensor, gearbox temperature*	49
(B6)	Sensor, gearbox*	47
E1	Headlight, right	30
E2	Headlight, left	29
E3	Front direction indicator, right	36
E4	Front direction indicator, left	35
E5	Rear light, right	37
E6	Rear light, left	34
E7	Cab light	18
E8	Thermostart	4
E9	Rear working light, right	25
E10	Rear working light, left	25
(E11)	Front working light, right	26
(E12)	Front working light, left	26
E13	Instrumentation lights	8, 10
(E15)	Cigarette lighter	16
(E16)	Number plate light	34
(E17)	Raised headlights, right	28
(E18)	Raised headlight, left	27
(E19)	Fog light, rear	52
(E22)	Lights on roof console	57
	FA, FB, FC, FD Fuses	
FA1	5A Instruments, ind.lights, Autocontrol, fuel gauge	9, 44
FA2	10A Rot. warning light, radio	24
FA3	15A Wiper+washer, rear wiper+washer	12
FA4	5A Front PTO, light switch illum. light, current socket	28
FA5	15A Direction indicators, braking lights, reverse buzzer, air suspen. seat, warning flashers	38, 58
FB1	25A Light switch	29
FB2	15A Dipped beams	29
FB3	15A Full beams, –indication light	29
FB4	5A Autocontrol	43
FB5	20A Starter switch, electric–stop, rear fog light, control stop, Thermostart	3, 52, 60
FC1	10A Cigarette lighter, cab light	17
FC2	15A Rear working lights	25
FC3	15A Horn, rear socket, front working lights, hazard warning flashers	40
FC4	5A Left parking light, instrumentation lights, working light switches, hazard warning flashers illum. light	35
FC5	Parking light, right	36
FD1	20A Fan, upper fan I–II-speed, Air–conditioner	12
FD2	20A Air–conditioner, upper fan III-speed	56
FD3	10A HiShift, PTO–HiShift, radio	62–63
FD4	25A Current socket	64
FD5	5A Radio, (clock*), light alarm buzzer	1
	In engine room	
(F51)	15A Electrically controlled main circuit breaker	70

Sym-bol	Component	Code no
G1	Battery	1
G2	Alternator	3
H1	Indicator light, direction indicators II	40
H2	Indicator light, direction indicators I	39
H4	Indicator light, air filter	6
H5	Indicator light, engine oil pressure	7
H6	Warning light, Stop, engine temperature	7, 59
(H7)	Indicator light, gearbox oil pressure	
H11	Indicator light, parking brake	9
(H12)	Indicator light, Thermostart	5
H13	Indicator light, PTO clutch	6
H14	Indicator light, high beams	31
H15	Indicator light, fuel reverse	9
H16	Indicator light, charging	4, 68
H20	Indicator light, differential lock	5
H23	Horn	40
(H24)	Rotating light	24
(H27)	Rear buzzer	58
H30	Light alarm buzzer	47
H31	Direction indicator, left	39
H32	Direction indicator, right	35
K1	Auxiliary relay, starter (ignition switch)	2
K2	Direction indicator relay	39
(K3)	Relay, front working lights	26
K4	Relay, rear working lights	26
K5	Headlight dipper switch relay	29
K6	Auxiliary relay, starter switch	5
(K7)	Relay, rear fog light	52
(K8)	Relay, roof fan III–speed	56
K9	Auxiliary relay, starter switch	6
(K18)	Relay, control stop	60
(K24)	Reley, HiShift	63
(K25)	Relay, PTO–HiShift	65
(K51)	Relay, indicator light, contr. main current switch	69
M1	Starter motor	2
M2	Heater fan	12
M3	Windscreen wiper	15
M4	Windscreen washer pump	14
(M5)	Roof fan	55
(M6)	Rear window wiper	20
(M7)	Rear window washer	19
P1	Engine temperature gauge	8
P2	Fuel gauge	9
P3	Rev counter	10
P4	Hour recorder/AC (.../speed*)	11
(P5)	Clock, AC, trip, gearbox oil temperature*	47
(Q2)	Main circuit breaker	1
R1	Resistance, heating fan 1,2 ohm	12
S1	Ignition switch	2, 60
(S2)	Switch, roof fan	55
(S3)	Switch, rear window wiper and washer	18
S4	Switch, windscreen wiper and washer	15
S5	Switch, heater fan	13
(S6)	Switch, rotating warning light	23
S7	Switch, headlights	29
S8	Switch, rear working lights	25
(S9)	Switch, front working lights	27
S10	Combined switch	32
(S11)	Toggle switch, raised headlights	29
S12	Contact, starter interlock	2
S13	Brake light contact	35

K 2.8.2. Agricultural towing device



The agricultural towing device is used for the towing of machines where only a small part of the weight rests on the drawbar (e.g. shredders, bailing presses, 2–axle trailer etc).

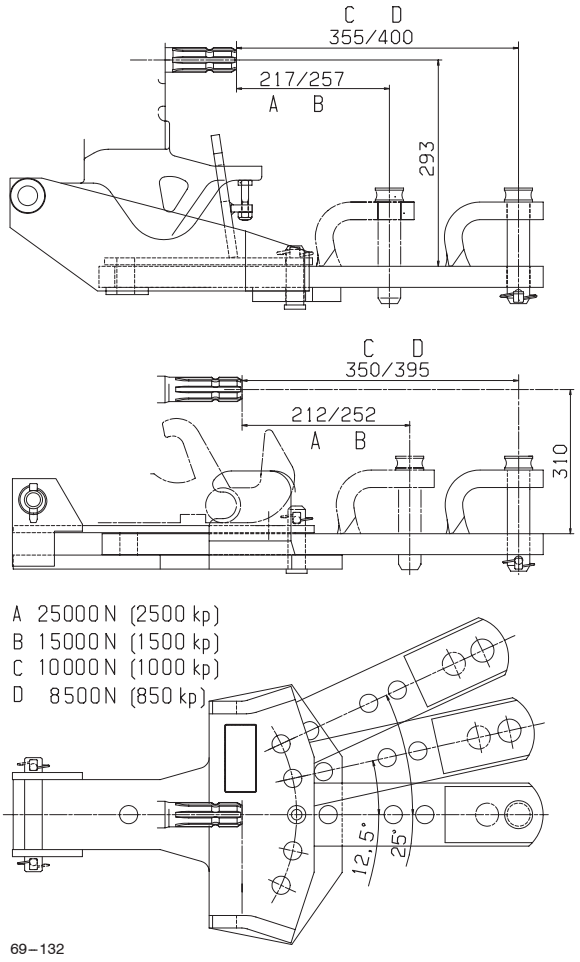
There are two models of the drawbar:

– With hydraulic trailer hitch
– Fixed without hydraulic trailer hitch

Both the models have almost the same properties.

Also both models are suitable for North America.

1. Specifications



Distance between hitch point and power take–off and corresponding permissible vertical loading. Max permissible vertical loading on the drawbar is 5000 kg.

– Distance between pulling pin and power take–off can be adjusted in four positions
– In the North America – model only the three outermost positions can be to used
– In the two rear positions the drawbar can be turned sideways to two different positions (±12,5° and ±25°).