5.10 ELECTRICAL SYSTEM

COMPONENTS IN THE ENGINE AREA - Fig. 66 – Fig. 69

IMPORTANT: *When a fuse or a relay is replaced, make sure the new one has the same rating as the old one. The rating is marked on the component.*

Most of the electrical components (relays, diodes and fuses) are located under the rear control panel in the two boxes (1).

However, some important components can be found in the engine area.

The relay (3) and the fuse (4) located inside the box (2) under the air filter are connected to the engine starting circuit.

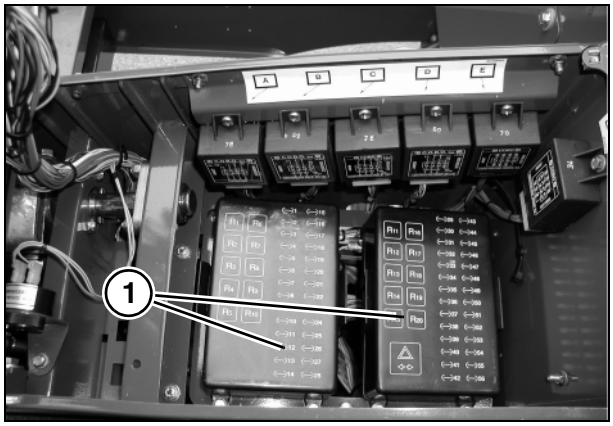

Fig. 66

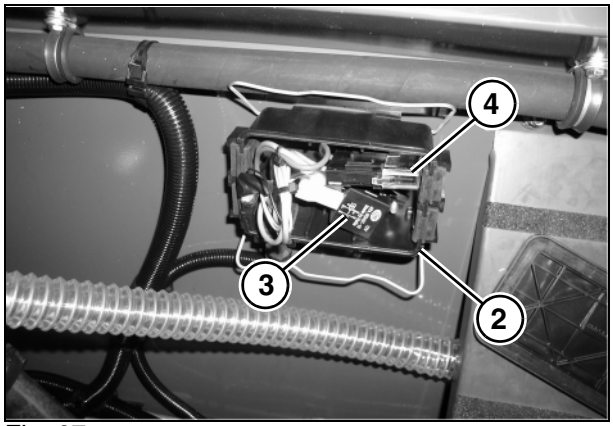

Fig. 67

A 250A fuse (5), which protects the entire electrical system of the combine, is fitted in the rear part of the engine (straw walker side) in one of the cables wired to the starter.

A pressure switch (6), which provides the system with the engine lubrication oil pressure and the "engine running" signal, is fitted in the front part of the engine (grain tank side).

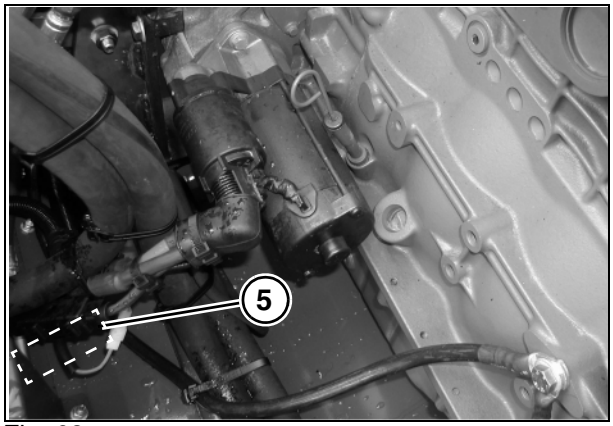

Fig. 68

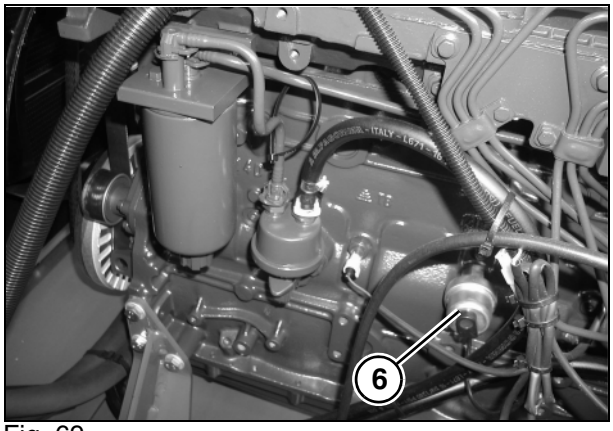

Fig. 69

CONTROL UNITS

Fig. 70 and Fig. 71

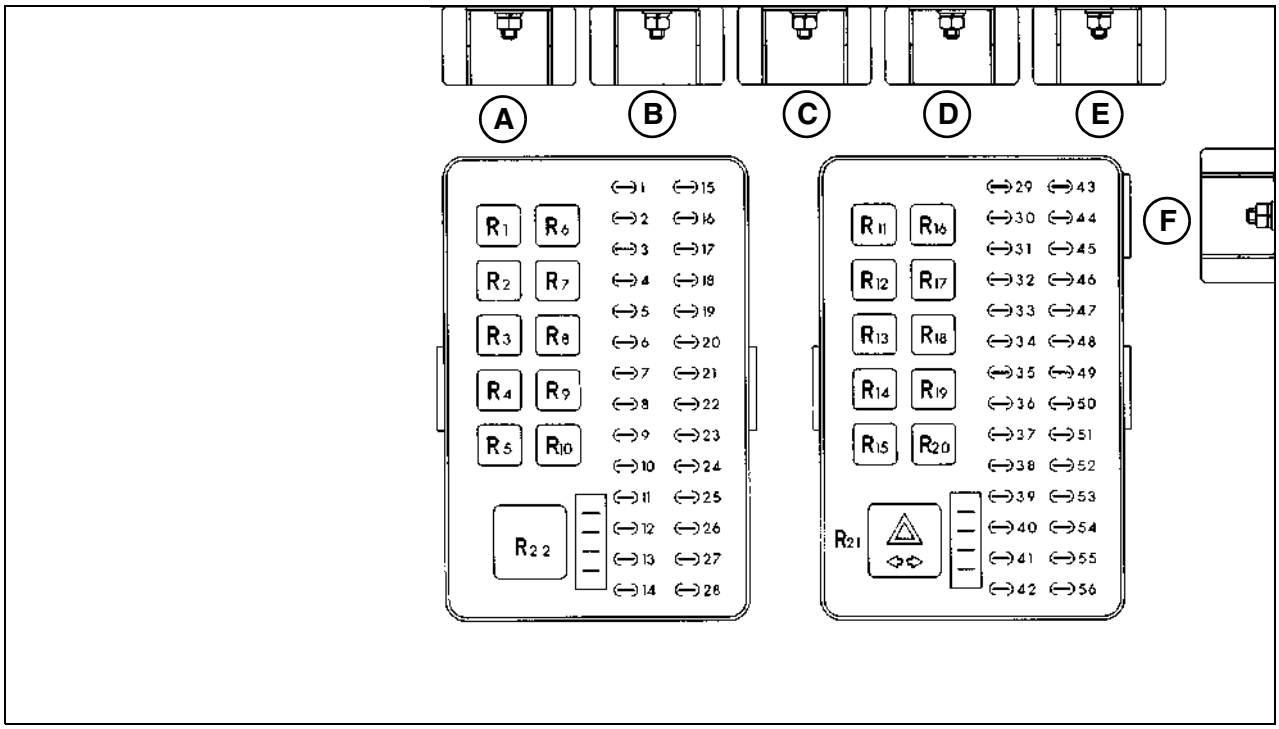

Fig. 70

A.) Buzzer

B.) Relay box for manual control of table up/down

C.) Relay box for control of reel up/down

D.) Relay box for unloading auger position and indicator light for general alarm

E.) Diode box for main valve in table valve block (right-hand side)

F.) Diode boxes for main valve in auxiliary hydraulics valve block (left-hand side)

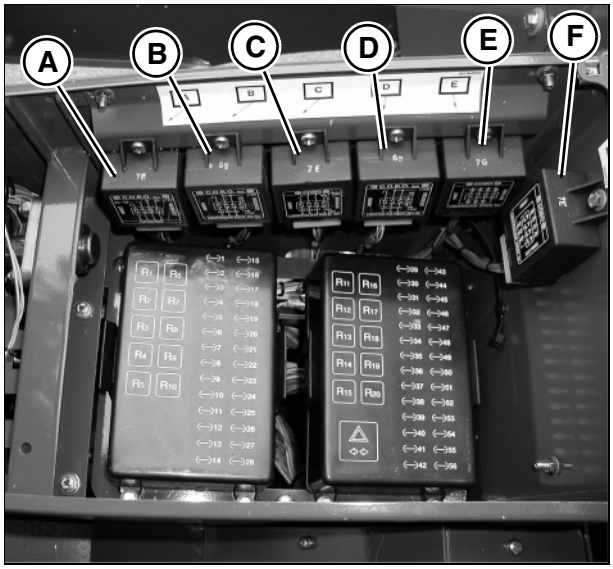

Fig. 71

RELAYS

Fig. 70 and Fig. 71

R1 - Alarm for cleaning unit revolutions

R2 - Alarm for returns system revolutions

R3 - Alarm for straw chopper revolutions

R4 - Relay for reel speed variator or for knife positioning on maize headers

R5 - Relay for reel speed variator or for knife positioning on maize headers

R6 - Power supply relay for reel, cylinder and fanning mill variators (engine switched on and threshing unit engaged)

R7 - Auxiliary relay for fuse functions 2, 3, 4, 5 and 6

R8 - Relay for straw chopper engagement

R9 - Not used

R10 - Not used

R11 - Not used

R12 - Not used

R13 - Relay for engine start

R14 - Relay for stop light

R15 - Auxiliary relay for fuse functions 40, 41 and 42

R16 - Not used

R17 - Not used

R18 - Relay for engagement of rotating yellow beacons when the grain tank is full

R19 - Auxiliary relay for fuse functions 52, 53, 54 and 55

R20 - Relay for horn

R21 - Relay for direction flashers

R22 - Not used

FUSES AND DIODES

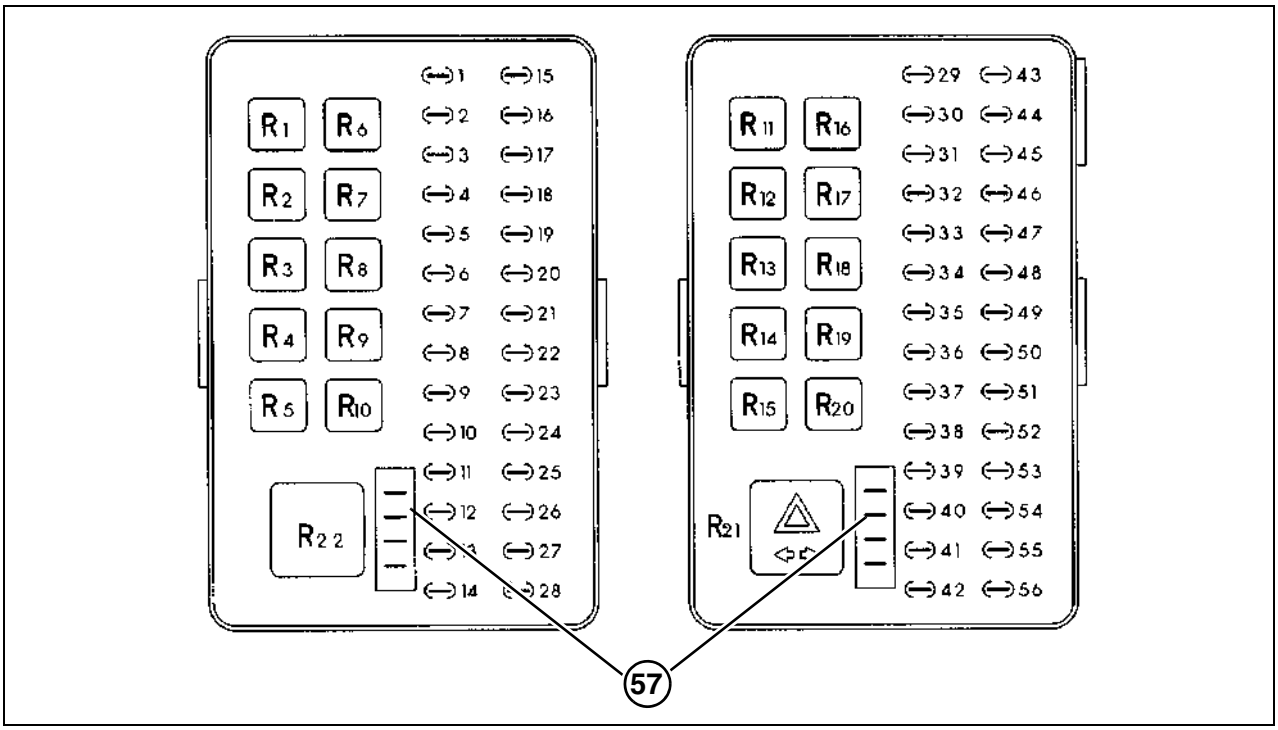

Fig. 72

Pos.	Fuse or diode	DESCRIPTION/USE
1	25A	General functions of fuses 2, 3, 4, 5 and 6.
2	15A	Engagement/disengagement of straw chopper
3	10A	Not used
4	20A	Reel, cylinder variator, fanning mill variator and light indicator for cutting table in contact.
5	10A	Relay box "D".
6	20A	Electric reel speed variator / knife for maize header and straw chopper deflectors (if fitted)
7	25A	Not used
8		Not used
9		Not used
10		Not used
11		Not used
12		Not used
13	Diode 1 A	Indicator light for clogged hydraulic circuit oil filter.
14		Not used
15	15A	Simultaneous flashing.
16	7.5A	Not used
17	7.5A	Not used
18	20A	Not used
19	Diode 1 A	Indicator light for general alarm.
20	Diode 1 A	Indicator light for general alarm.
21	-	Not used
22	-	Not used
23		Not used

Pos.	Fuse or diode	DESCRIPTION/USE
24		Not used
25	Diode 1 A	Indicator light and buzzer for high hydrostatic circuit oil temperature.
26	Diode 1 A	Indicator light and buzzer for low hydrostatic circuit supply pressure.
27	Diode 1 A	Audible alarm (horn) for straw walker blockage and straw chopper spreading hood in turned up position.
28	Diode 1 A	Audible alarm (horn) for engaged parking brake.
29	25 A	General functions of fuses 30, 31, 32, 33, 34, 35, 36, 37 and 38.
30	15 A	Engine started, functions of fuse 4 and reel up/down movement authorisation.
31	10 A	Not used
32	15 A	On-Board Computer.
33	3 A	Not used
34	7.5 A	Not used
35	10 A	Relays for rotating yellow beacons (with full grain tank) and horn (blocked straw walkers or applied parking brake), light indicators on control panel, indicator light simultaneous flashing (on switch) and buzzer.
36	3 A	Alarm unit and push buttons on multifunction lever for table up/down, reel up/down, reel fore/aft, reel speed variator and unloading auger positioning.
37	3 A	Power supply to cylinder revolution, fanning mill revolution, odometer and straw chopper revolution sensors
38	7.5 A	Auxiliary relay coils and stop light relay; cab blower, push button lighting in the cab and engine stopping.
39	25 A	General functions of fuses 40, 41 and 42.
40	15 A	Rotating yellow beacons.
41	7.5 A	Combine and trailer direction flashers.
42	7.5 A	Horn.
43	25 A	General functions of fuses 44, 45, 46, 47, 48, 49 and 50.
44	7.5A	Front right position light and rear left position light, indicator light and instrument lighting.
45	7.5A	Front left position light and rear right position light, cab air conditioning unit lighting and multiple light indicator.
46	7.5A	Right-hand low beam.
47	7.5A	Left-hand low beam.
48	7.5A	Right-hand high beam and high beam indicator lamp on main control panel.
49	7.5A	Left-hand high beam.
50	10 A	Stop lights.
51	25 A	General functions of fuses 52, 53, 54 and 55.
52	10 A	Auxiliary connectors and front work lights.
53	10 A	Reversing light and buzzer.
54	15 A	Light in grain tank.
55	15 A	Auxiliary connector.
56	3 A	Engine starting relay coil.
57	-	Available additional fuses.

CAB FUSES - Fig. 73

The cab fuses are grouped in two small boxes (S) placed on the recirculated air filter (F).

To reach the boxes (S) it is necessary to dismount the filter protection grate.

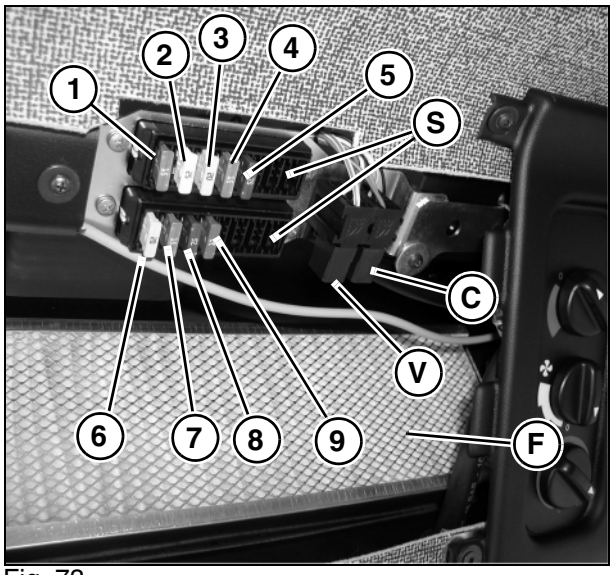

Fig. 73

Pos.	Fuse	Description/Use
1	15 A	Internal work light
2	25 A	Relay for blower (V)
3	20 A	Rotating yellow beacons
5	15 A	Central work lights
5	7.5 A	Relay for air conditioning (C)
6	20 A	Direction flashers
7	15 A	External work light
8	7.5 A	Connector for radio and ceiling light
9	10 A	Windscreen wiper/wash

HEADLIGHT ADJUSTMENT - Fig. 74

It is extremely important to adjust the headlights correctly according to the regulations in force for road transport.

Inquire about local regulations in this respect. If necessary, adjust the light beam using the headlight fastening screw (1).

Replace burnt bulbs with new ones of the same size (45 W).

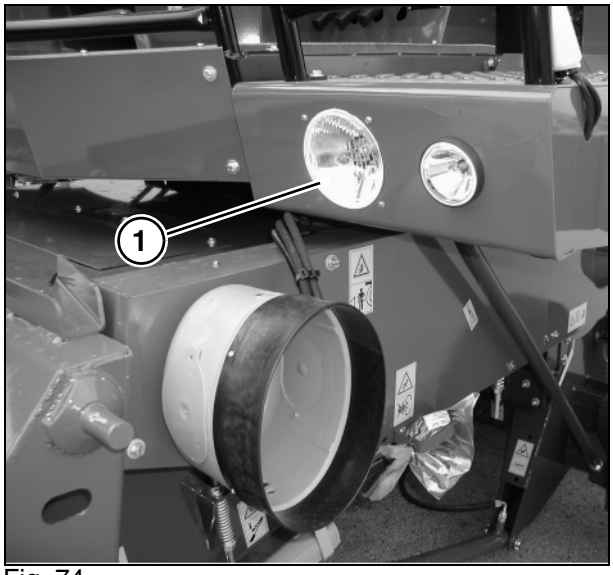

Fig. 74

GRAIN TANK FULL LIGHT AND SENSOR (if fitted)

Fig. 75 – Fig. 77

To improve visibility inside the grain tank, particularly at night, the combine is fitted as standard with a light (1) above the front window of the tank.

The control switch is located on the instrument control panel.

The direction of the light beam can be adjusted manually.

The combine can be fitted with a tank full sensor as an option.

The sensor (2) is activated by the force on its external diaphragm when the crop in the tank approaches the maximum level.

When the circuit is closed, an indicator light  and a buzzer are activated in the cab.

At the same time, the front rotating yellow beacons (3) and the rear rotating yellow beacon come on.

This allows the combine operator and the driver of the vehicle to which the crop is to be transferred to prepare for unloading in advance.

IMPORTANT: *The grain tank full sensor (2) can be adjusted in height depending on humidity and crop type.*

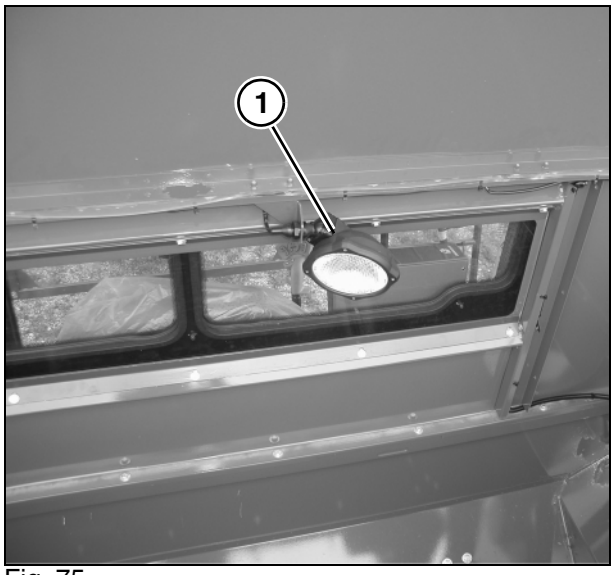

Fig. 75

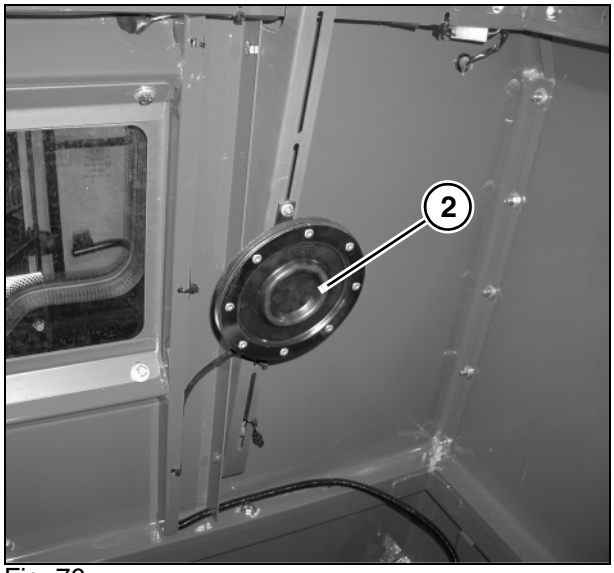

Fig. 76

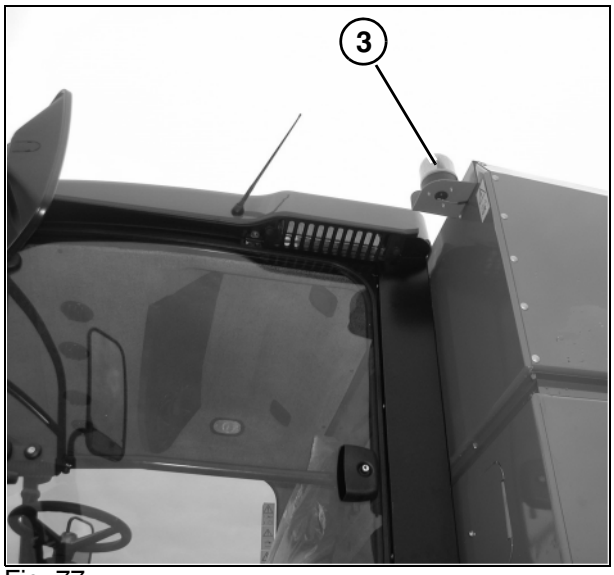

Fig. 77

UNLOADING AREA LIGHT (if present)

Fig. 78

To improve visibility during unloading operations, the operator can switch on the light (1).

The control switch is located on the rear control panel.

The direction of the light beam can be adjusted manually.

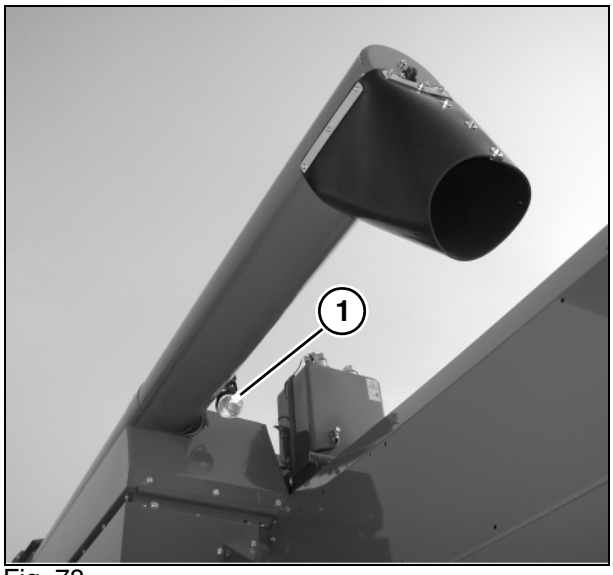

Fig. 78

REVERSING AREA LIGHT (if present)

Fig. 79

To improve visibility when reversing, the operator can switch on the light (1).

CAUTION: *Switch the light off when driving the machine on public roads.*

The control switch is located on the rear control panel.

The direction of the light beam can be adjusted manually.

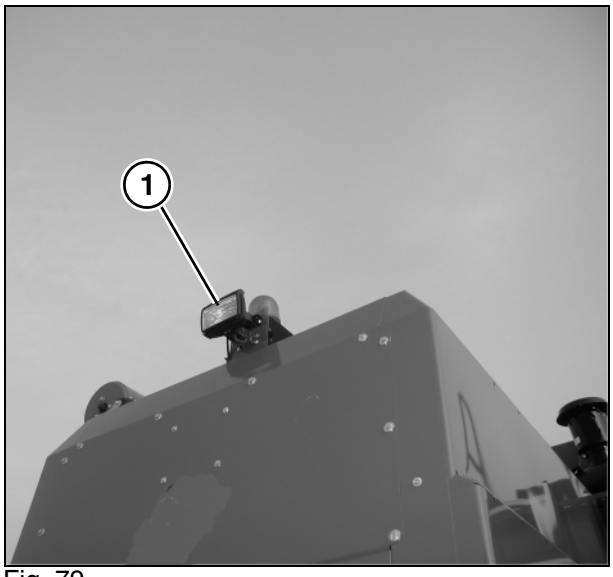

Fig. 79

BATTERY

The combine is equipped with a 12 V battery (150 Ah).

The ground cable is connected to the battery negative pole (-).

Check the electrolyte level once a week (every 75 working hours) and, if required, refill with distilled water until covering the partitions.

The battery can be completely disconnected by the main switch (1) or by removing the negative terminal from the battery.

Important Notes

1.) At low temperatures, add water immediately before starting the engine. In this way, the charging current allows water and electrolyte to mix preventing freezing of the battery.

***DANGER**: Avoid sparks or naked flames near the battery, the battery gas could explode.*
Never check the battery charge by placing a metal object between the terminals. Use a voltmeter or a densimeter.

2.) If the engine is difficult to start, do not keep the ignition key in starting position for more than 20 seconds, rather try again after a few seconds.

3.) Battery terminals must be regularly cleaned and coated by a film of acid-proof grease or industrial vaseline to prevent corrosion.

4.) Make sure the filling plug bleed holes are not restricted.

5.) The battery must not be disconnected while the engine is running, as this could cause severe damage to the alternator.

6.) To ensure long life of the battery, switch off all lights before starting the engine.

7.) Under normal conditions, never add sulphuric acid to the battery.

8.) Batteries should be stored only when charged.

***DANGER**: Never charge a frozen battery. It could explode. For battery maintenance, strictly observe the safety precautions described on page 1-18.*

Indicator Light for Battery Charging

When the ignition key is turned to position 1 (instruments supplied), the battery charging indicator (2) on the multiple light indicator switches on.

The indicator switches off when the engine is started.

If the warning light stays on, the alternator is not functioning properly.

If the failure cannot be found quickly, contact your local Dealer.

If, after turning the ignition key to position 2 the indicator light for low battery charge (1) does not switch on, find the cause (bulb, cable, fuse, etc.) and solve the problem.

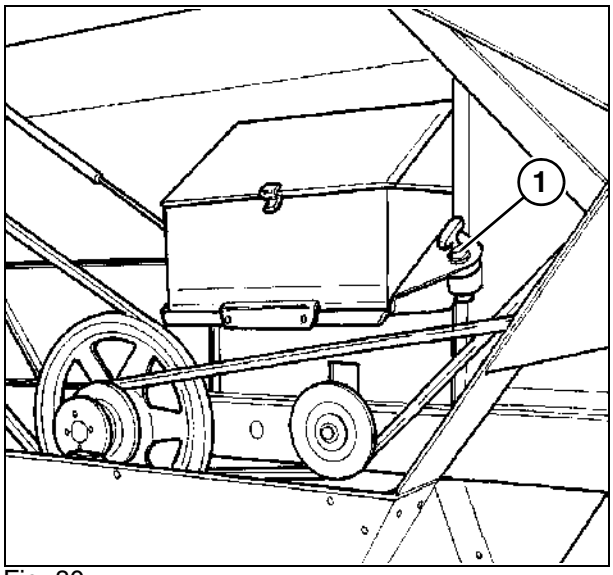

Fig. 80

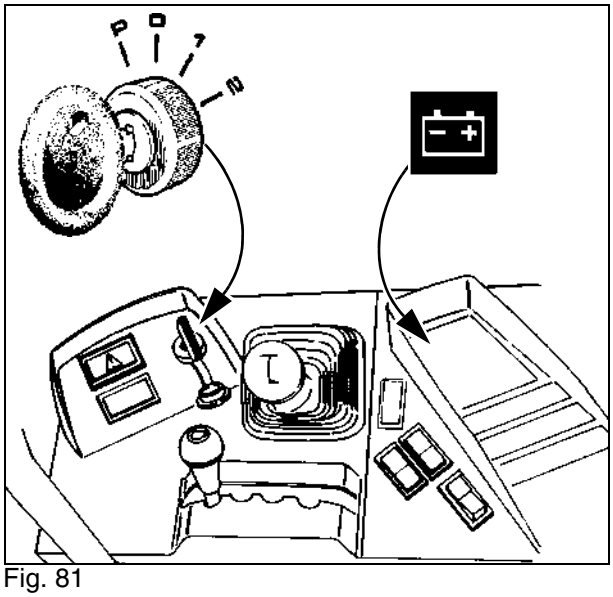
Fig. 81

Battery Replacement - Fig. 82

ATTENTION: *The battery positive cable (+) is always live.*

a.) Lift the guard (1).

b.) Turn the lever (2) to the vertical position.

c.) Lift the guard (3).

d.) Always disconnect the ground cable (-) first, then the positive cable (+).

e.) Remove the stop plate (4).

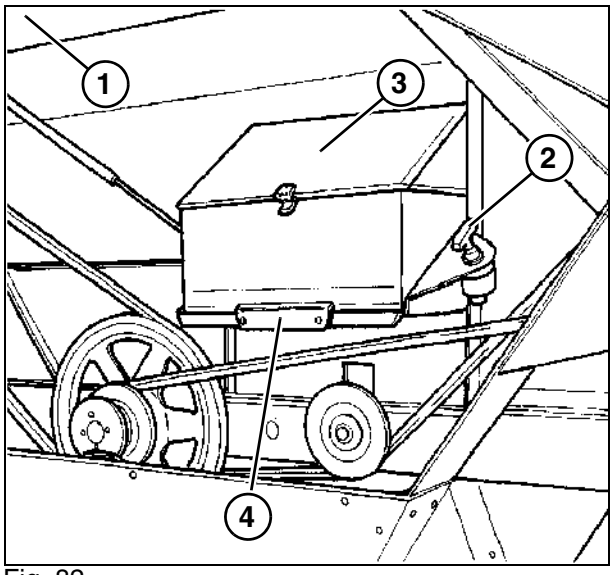

Fig. 82

DANGER*: Risk of squeezing, cutting or shocks.*
Two people are required to handle the battery.

For reassembly, proceed in reverse order.

Suggestions

1.) When using an external battery, always connect it in parallel, i.e. negative pole (-) to negative pole (-) and positive pole (+) to positive pole (+).

2.) Before connecting a battery charger, always remove the cables. Remove the battery plugs so that
hydrogen released during charging can escape. Make sure the battery charger is connected correctly.

3.) Never start the engine when the cables between alternator and battery are disconnected.