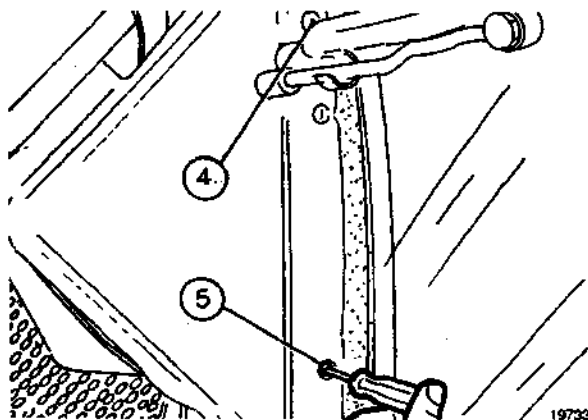
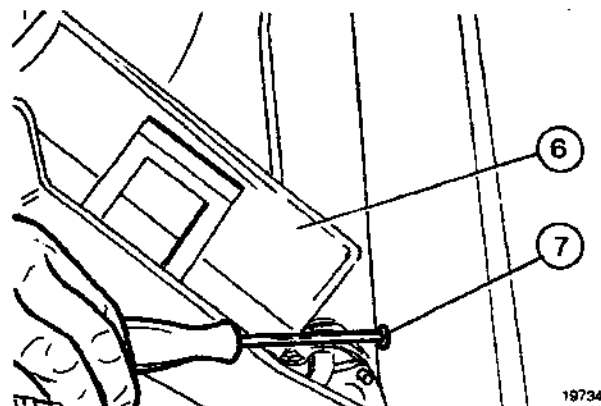


WINDSHIELD WIPER MOTOR
Removal-Installation (Op.55 218 52)

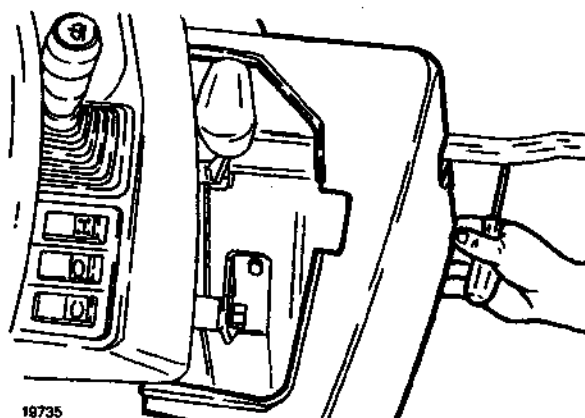
For removal, proceed as follows:



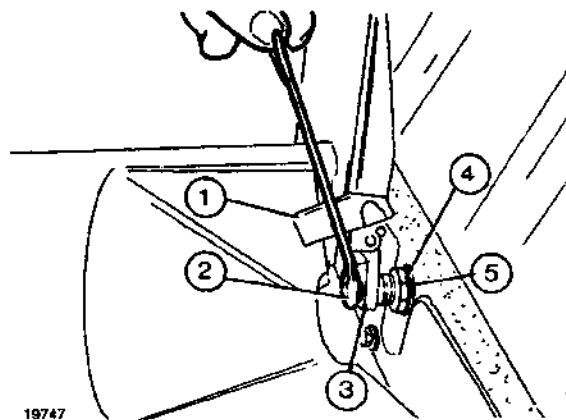
1. Remove plugs (4) and dashboard side panel screws (5).



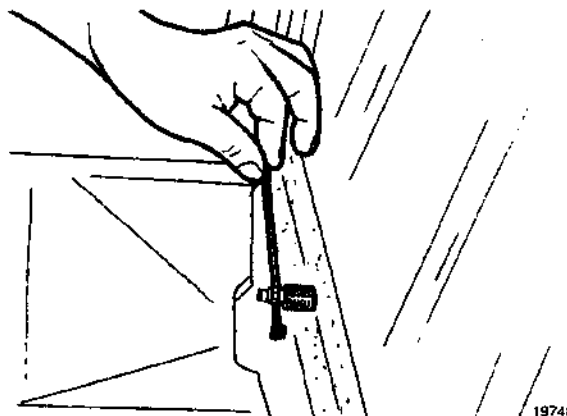
2. Unscrew the cover (6) retaining nut of the fuse box, located in the instrument panel lower side, open cover (6) and remove the side panel attaching screws (7).



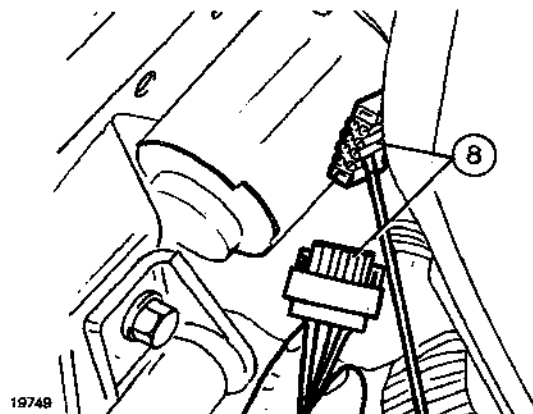
3. Remove the dashboard side panels.



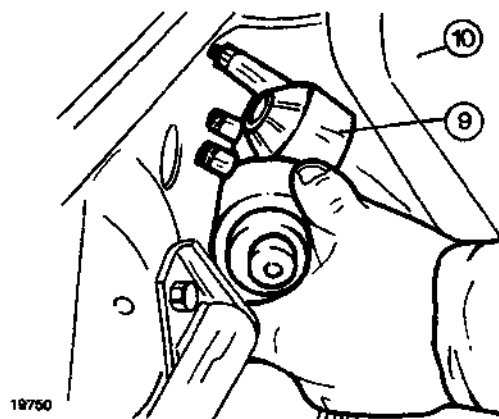
4. Working on the outside of the cab: free cover cap (1), remove the wiper locknut (2) and arm (3), then the wiper motor ring nut (4) and washer (5).



5. Remove the two screws securing wiper motor to cab frame.

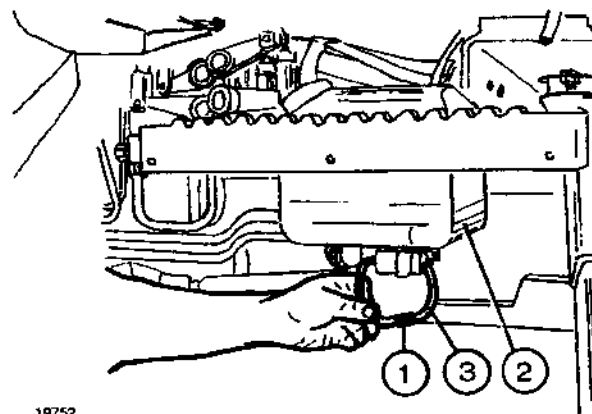


6. Disconnect electric wiring (8) on the inside.



7. Remove wiper motor (9) through the space in between dashboard (10) and windshield glass.

8. Proceed to install the front windshield wiper motor as follows:
- a. reverse the previous sequence of operations starting from no. 7 back to no. 1;
 - b. see illustrations of pages 55-1 and 55-2 for the correct placement of parts;
 - c. check that the wiper blade stroke is correctly centered on the windshield between ends; if not, correct it by suitably changing its position on the knurled motor shaft.



4. Take out the line (3) connecting check valve and windshield washer jet spray after freeing it from all clamps in common with other fluid lines.
5. Proceed to install the hose between check valve and front windshield spray nozzle, as follows:
- a. reverse the previous sequence of operations starting from no. 4 back to no. 1;
 - b. always operate in clean and moisture-free surroundings. Should the line remain temporarily disassembled, make sure that open ends are sealed tight;
 - c. Fill the windshield washer liquid reservoir.

WINDSHIELD WASHER FLUID LINE CONNECTING CHECK VALVE AND JET SPRAY Replacement (Op. 55 518 14).

For replacement, proceed as follows:

1. Remove the hood R.H. side panel.
2. Disconnect line from windshield washer nozzle under the hood and pull the latter downwards.
3. Take the line off from opposite end and disconnect it from the check valve (1) placed near the windshield washer fluid container (2).

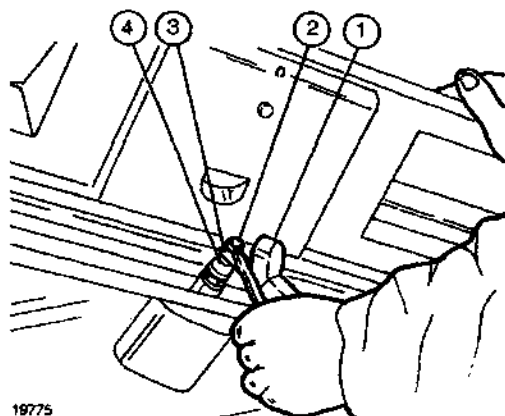
WINDSHIELD WASHER JET SPRAY NOZZLE Replacement (Op. 55 518 24)

For replacement, proceed as follows:

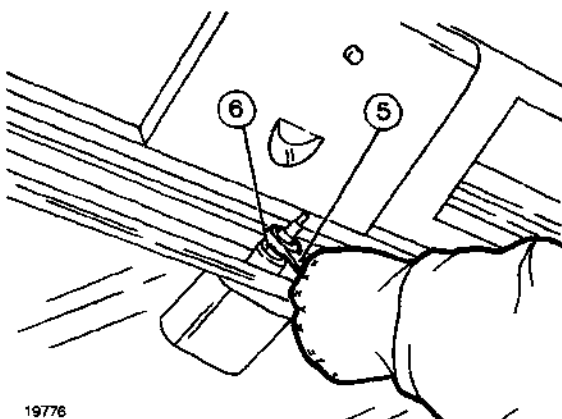
1. Remove the hood R.H. side panel.
2. Disconnect line from windshield washer nozzle under the hood and pull the latter downwards.
3. Remove the windshield washer nozzle by inserting a 13mm wrench on the ring nut located under the hood and simultaneously unscrewing the nozzle on the upper end using a 12mm wrench.
4. Proceed for the installation of the windshield spray washer nozzle by reversing the previous sequence of operations, starting from no. 3 back to 1.

**REAR WINDOW GLASS WIPER MOTOR
Removal-Installation (Op. 55 518 82)**

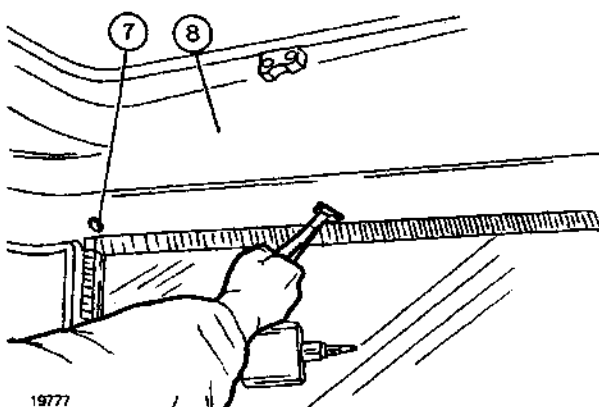
For removal, proceed as follows:



1. Working on the outside of the cab: free cover cap (1), remove locknut (2) and wiper arm (3) and seal (4).

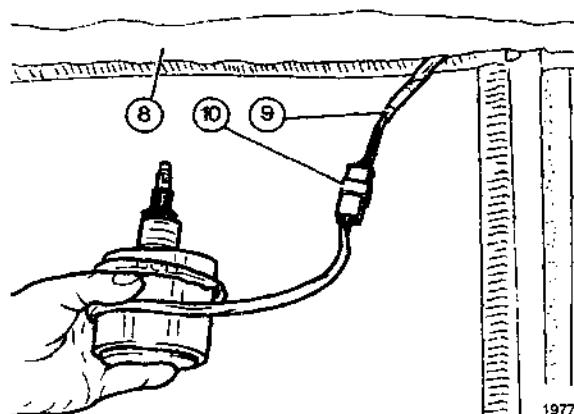


2. Remove the ring nut securing motor to glass using a box wrench (5) and then the washer and seal (6).



3. Working on the inside of the cab, remove motor from glass and the three retaining plastic plugs (7) from the cab rear headlining (8).

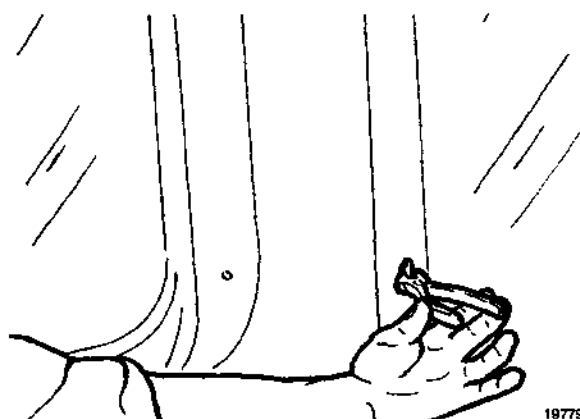
in plastica (7) dal rivestimento superiore posteriore cabina (8).



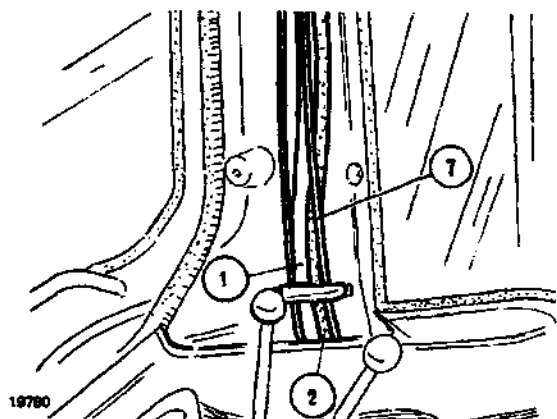
4. Pull out from headlining (8) the wiper motor cable (9), disconnecting it from electric plugs (10).
5. Proceed for the installation of the rear window wiper motor as follows:
 - a. reverse the previous sequence of operations starting from no. 4 back to 1;
 - b. see illustrations above for the correct placement of parts;
 - c. check that the wiper blade stroke is correctly centered on the windshield between ends; if not, correct it by suitably changing its position on the knurled motor shaft.

**REAR WINDOW GLASS FLUID LINE CONNECTING
CHECK VALVE AND JET SPRAY
Replacement (Op. 55 518 64)**

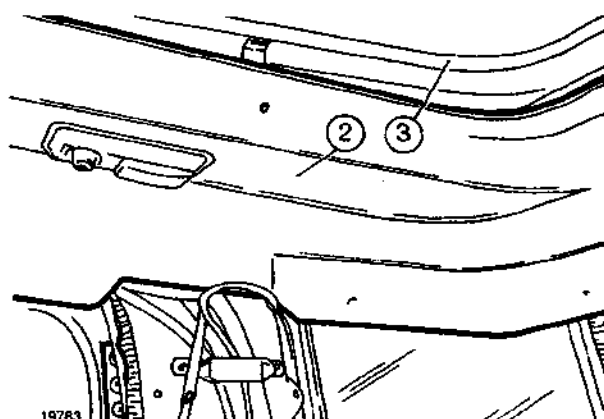
For replacement, proceed as follows:



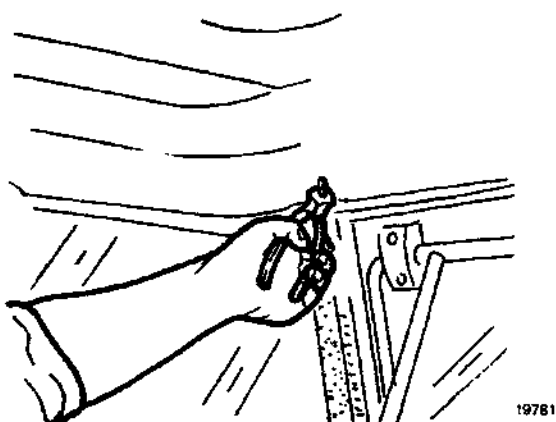
1. Working on the inside of the cab, remove the R.H. side pillar trim retaining plastic plugs.



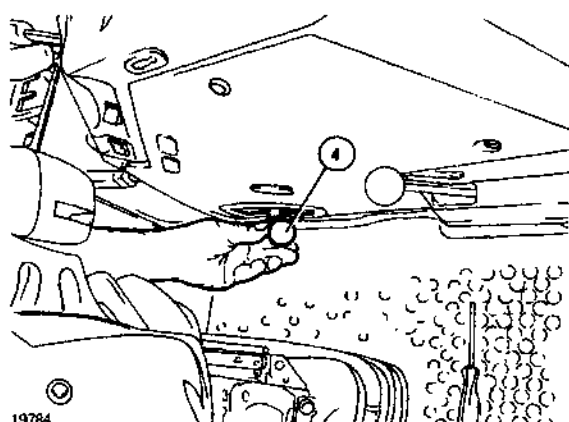
2. Remove the R.H. side pillar trim to gain access to the washer fluid line (7).



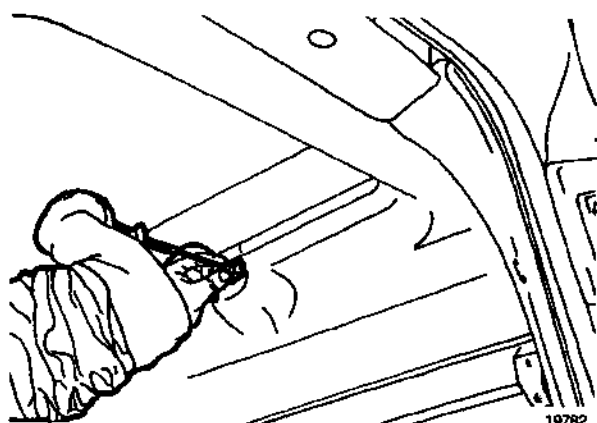
5. Pull the cab roof headlining (2) down in order to make sufficient room between cab (3) and lining to allow subsequent access to the washer fluid line.



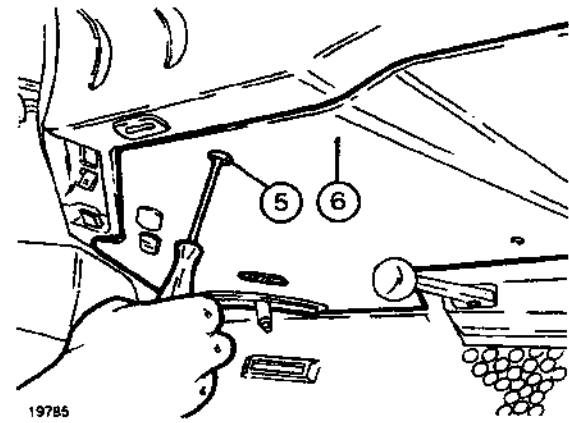
3. Remove the cab headlining retaining plastic plugs from the R.H. side and rear door area as shown in the figure.



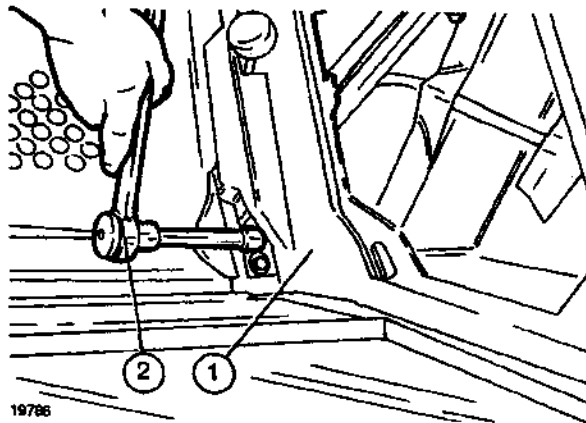
6. Remove the PTO control knob (4).



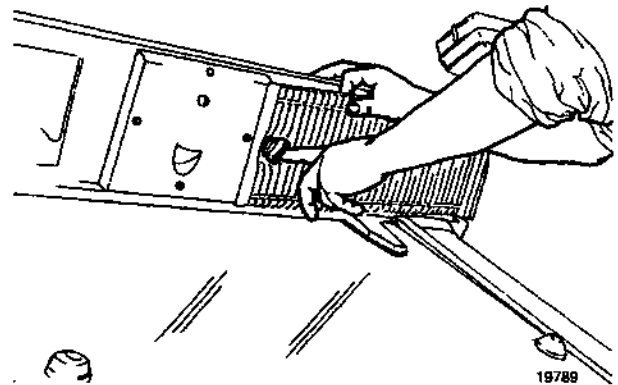
4. Remove the roof hatch fixed support attaching screws and the support itself.



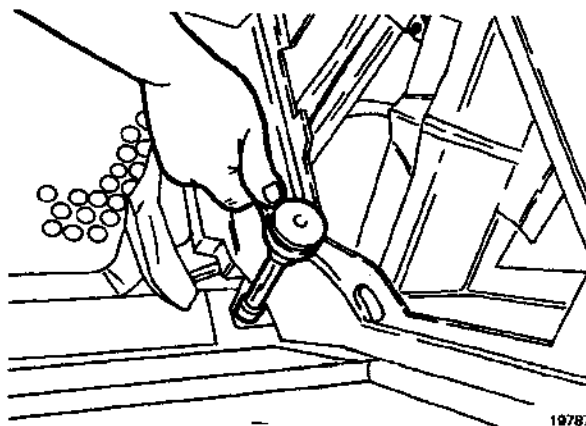
7. Remove screws (5) securing the rear R.H. side mudguard panel (6) and then the panel itself.



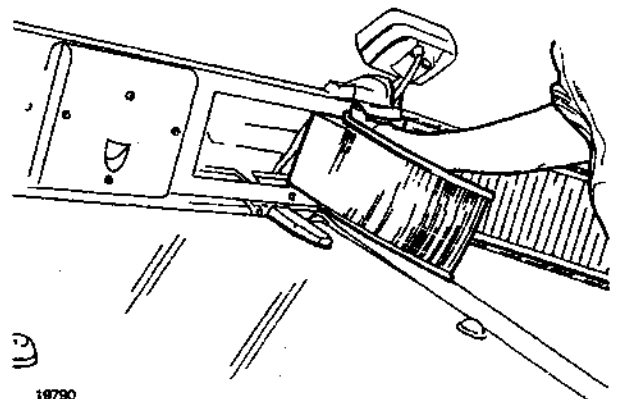
8. Remove the mounting panel (1) attaching screw using a box wrench (2).



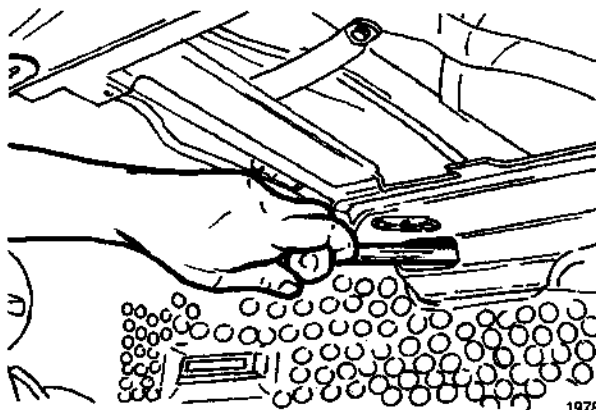
11. Working on the outside of cab rear end, remove the R.H. side air intake grille knob.



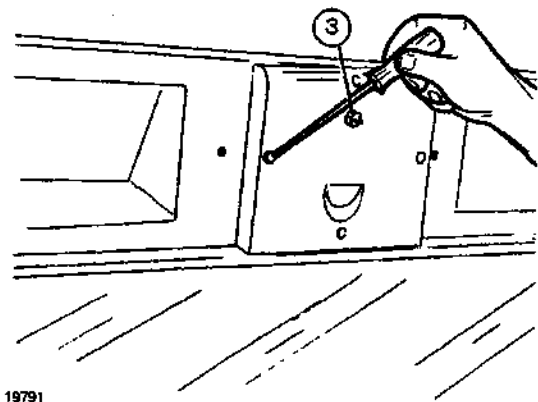
9. Remove the mounting panel (1) to cab floor attaching screw using a box wrench.



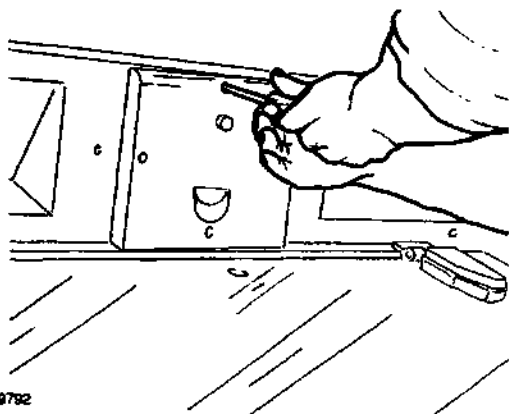
12. Open it and remove air filter pad.



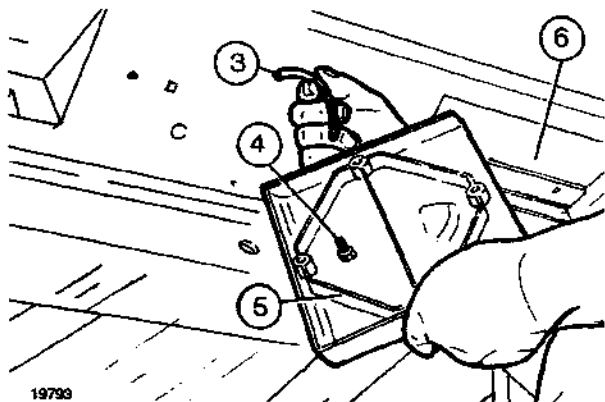
10. Remove the PTO control lever and rod.



13. Remove plugs covering the nozzle holder (3) support attaching screws.

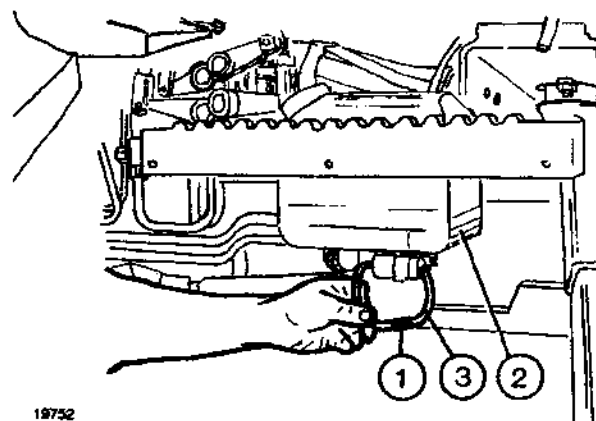


14. Remove the nozzle holder support screws using a Phillips-head screwdriver.



15. Disconnect washer fluid line (3) from nozzle (4) after removing the nozzle holder support (5).

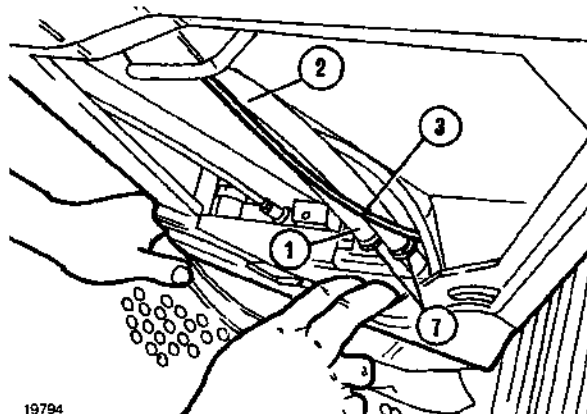
16. Slide out fluid line (3) from the central hole by hand, through the R.H. side air intake (6).



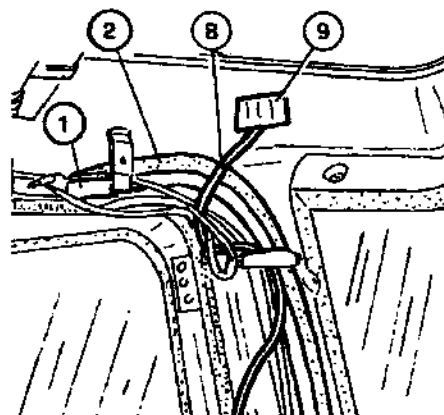
17. Detach opposite end of line (3) from check valve 1 installed near the washer fluid container (2).

18. Withdraw the tube (3) from the outside, along its layout from fluid container to the cab lower rear end, after removing any retaining clamps to other lines along the same path.

Move inside the cab and proceed as follows:



19. From R.H. mudguard side pull fluid line (3) upwards until it is completely withdrawn.



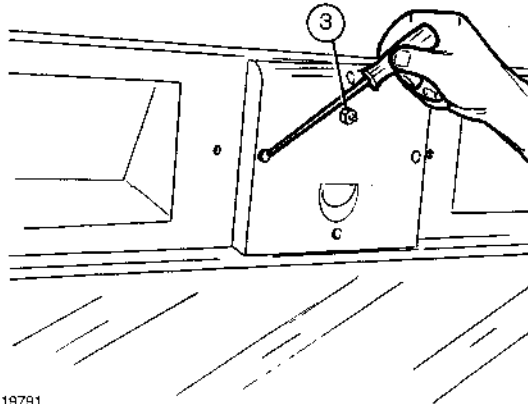
20. Pull the cab headlining downwards (as described for operation 5 on page 4). Remove adhesive tape (9) and withdraw, pulling downwards, the line (8) at nozzle end, noting that the layout of the line (8) covered by the cab roof lining is that shown in the figure.

21. Proceed for the installation of the hose connectin check valve and rear windshield jet spray nozzle as follows:

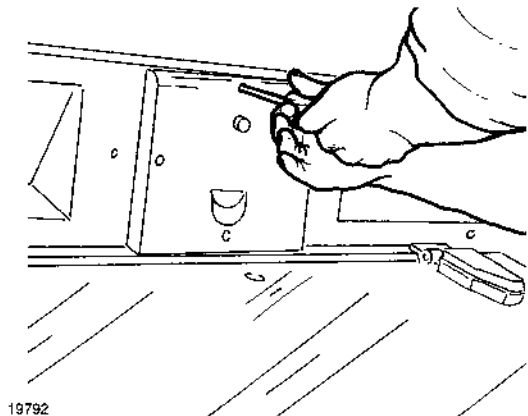
- reverse the previous sequence of operations starting from no. 20 back to 1;
- see illustrations of pages 55-3 through 55-6 for the correct placement of parts.

**REAR WINDOW GLASS WASHER
Replacement (Op. 55 518 74)**

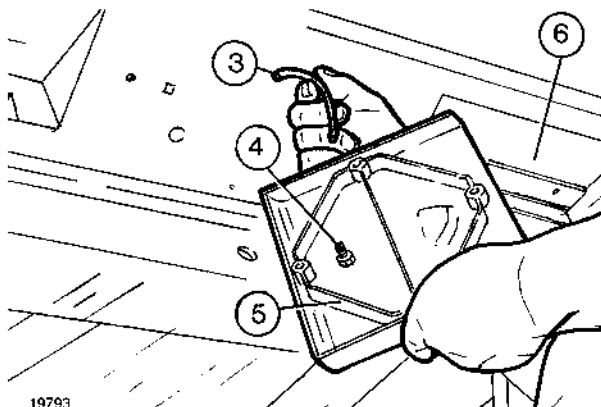
For replacement, proceed as follows:



1. Remove plugs covering the nozzle holder (3) support screws.

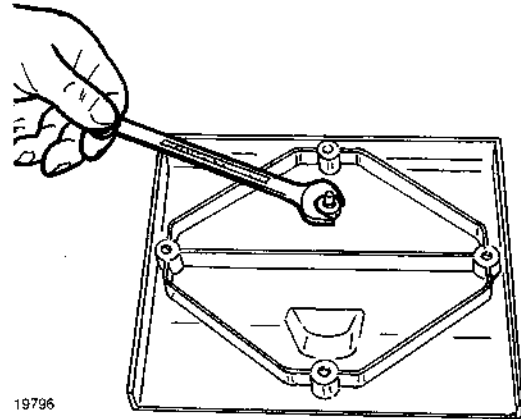


2. Remove the nozzle holder support screws using a Phillips-head screwdriver.

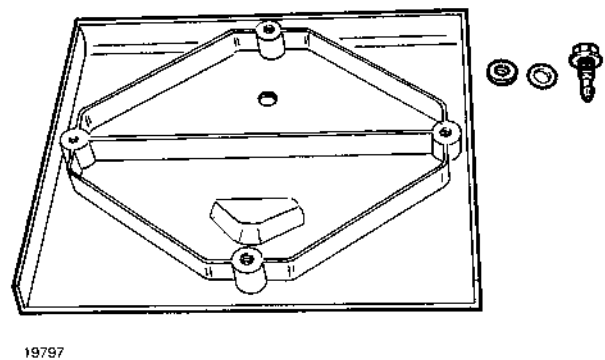


3. Disconnect fluid line (3) from nozzle (4) after removing the nozzle holder support (5).

With the nozzle holder support on workbench, proceed as follows:



4. Remove the nozzle locknut using a 13mm wrench, holding the nozzle with a 12mm wrench.



5. Retrieve component parts.

6. Proceed for the installation of the rear window glass spray nozzle by reversing the previous sequence of operations, starting from no. 5 back to no. 1;
a. for correct assembly of component parts follow the above illustrations;
b. always work under conditions of absolute cleanliness. Should the tubelet remain temporarily loose, make sure it is thoroughly sealed.

MARELLI STARTING MOTOR

Type	MARELLI MT 68 LC 632168.96
Voltage rating	12 V
Rated output	3.5 kW
Rotation, (seen from pinion end)	clockwise
Gear tooth ratio, pinion and ring gear	9/127
Poles	4
Excitation (field windings)	in series
Engagement	lever and freewheel
Drive	solenoid
Bench test data	
Running test at 20°C (68°F):	
– current	≤ 700 Amp
– torque output	≥ 19 Nm (1.9 kgm) (13.75 ft.lb)
– speed	≥ 1700 rpm
– voltage	9.1 V
Breakaway test at 20°C (68°F):	
– current	≤ 1550 Amp
– voltage	5.7 V
– torque output	≥ 52 Nm (5.3 kgm) (38.3 ft.lb)
No-load test at 20°C (68°F):	
– current	≤ 80 Amp
– voltage	≥ 11.6 V
– speed	≥ 7000 rpm
Mechanical data	
Brush pressure (unworn)	1.28 to 1.52 bar (18.56 to 22.04 psi)
Insulation undercutting depth	1 mm (.04 in) max
Freewheel efficiency: slip torque to drag pinion into slow rotation ...	0.6 to 0.8 Nm (0.06 to 0.08 kgm) (.58 ft.lb)

(follows)

MARELLI STARTING MOTOR

(cont.)

Commutator diameter	45.000 to 45.840 mm (1.7716 to 1.8047 in)
– permissible wear limit	44.000 mm (1.7323 in)
– maximum out-of-round	0.1 mm (.004 in)
– armature end float	0.1 to 0.4 mm (.004 to .016 in)
Solenoid	
Winding resistance at 20°C (68°F):	
– hold-in	$0.23 \pm 0.01 \Omega$
– pull-in	$0.78 \pm 0.04 \Omega$
Current consumption at 12 V	≤ 70 Amp
Activation voltage (minimum)	≤ 7 V
Moving contact stroke	2.2 to 3.5 mm (.087 to .138 in)
Plunger stroke	14.3 mm (.563 in)
Load at 12 V and plunger at end of stroke	≥ 392 N (40 kg = 88 lb)
Assembly data	
Pole shoe I.D.	75.830 to 76.000 mm (2.9854 to 2.9921 in)
Armature O.D.	74.900 to 74.950 mm (2.9488 to 2.9508 in)
Drive end bushing I.D.	12.475 to 12.502 mm (.4911 to .4922 in)
Pinion shaft journal diameter	12.425 to 12.440 mm (.4892 to .4898 in)
Pinion shaft running clearance	0.035 to 0.077 mm (.0014 to .0030 in)
Intermediate bushing I.D.	20.200 to 20.264 mm (.7953 to .7978 in)
Shaft journal diameter	19.967 to 20.000 mm (.7861 to .7874 in)
Shaft running clearance	0.200 to 0.297 mm (.0079 to .0117 in)
Commutator end bushing I.D.	14.000 to 14.027 mm (.5512 to .5522 in)
Shaft running clearance	13.957 to 13.984 mm (.5495 to .5505 in)
Giuoco di montaggio tra albero e boccia	0.016 to 0.070 mm (.0006 to .0027 in)
Lubrication data	
Starter drive helical groove (at overhauls)	TUTELA MR3 grease
Commutator end thrust washer	TUTELA MR3 grease

BOSCH STARTING MOTOR
 (Provisional data)

Type BOSCH	JF → 12V 0001367029
Voltage rating	12 V
Rated output	2.95 kW
Rotation (seen from pinion end)	clockwise
Gear tooth ratio, pinion and ring gear	9/127
Poles	4
Excitation (field windings)	in series and in parallel
Engagement	lever and freewheel
Drive	solenoid
Bench test data	
Short-circuit test at 20°C (68°F)	
– current	760 to 900 Amp ⁽¹⁾ 650 to 800 Amp ⁽²⁾
– torque output	4.6 kgm (33.2 ft.lb) ⁽¹⁾ 3.9 kgm (28.2 ft.lb) ⁽²⁾
– voltage	4 V ⁽¹⁾ 3.5 V ⁽²⁾
No-load test at 20°C (68°F):	
– current	60 to 90 Amp
– voltage	11.5 V
– speed	4800 to 6800 rpm
Mechanical data	
Brush pressure (unworn)	2.6 to 2.8 kg (5.7 to 6.2 lb)
Armature end float	0.1 to 0.3 mm (.004 to .012 in)
Insulation undercutting depth	0.5 to 0.8 mm (.020 to .031 in)
Commutator diameter	42 mm (1.65 in)
Commutator permissible wear limit	39.5 mm (1.555 in)
Commutator out-of-round (max)	0.03 mm (.0012 in)
Stack out-of-round (max)	0.05 mm (.0019 in)

(follows)

⁽¹⁾ Measured with a charged battery ⁽²⁾ Measured with a discharged battery

BOSCH STARTING MOTOR
(Provisional data)

(cont.)

Solenoid	
Winding resistance at 20°C (68°F)	
– hold-in	1.05 Ω
– pull-in	0.25 Ω
Current consumption of pull coil at 12°C (68°F)	60 Amp
Activation voltage (minimum)	9 V
Plunger stroke	12 to 14 mm (.472 to .551 in)
Assembly data	
Pole shoe I.D.	75.850 to 75.953 mm (2.9862 to 2.9903 in)
Armature I.D.	73 mm (2.87 in)
I.D. of armature self-lubricating bushes (force fitted):	
– pinion frame end bushing	12.475 to 12.502 mm (.4911 to .4922 in)
– intermediate field frame bushing	19.020 to 19.072 mm (.7488 to .7509 in)
– commutator frame end bushing	14.000 to 14.018 mm (.5512 to .5519 in)
Armature shaft diameter at:	
– pinion frame end bushing	12.425 to 12.440 mm (.4892 to .4898 in)
– intermediate field frame bushing	18.887 to 18.910 mm (.7436 to .7445 in)
– commutator frame end bushing	13.932 to 13.950 mm (.5485 to .5492 in)
Armature shaft running clearance:	
– pinion frame end	0.035 to 0.077 mm (.0014 to .0030 in)
– intermediate frame	0.110 to 0.195 mm (.0043 to .0077 in)
– commutator frame end	0.050 to 0.086 mm (.0020 to .0034 in)
I.D. of bushing force-fitted in pinion hub	14.245 to 14.272 mm (.5608 to .5619 in)
Armature shaft diameter at pinion hub bushing	14.123 to 14.150 mm (.5560 to .5571 in)
Armature shaft running clearance at pinion hub bushing	0.095 to 0.149 mm (.0037 to .0059 in)
Lubrication data (at overhauls)	
Starter drive helical groove	TUTELA MR3 grease

BATTERY CHARGING SYSTEM

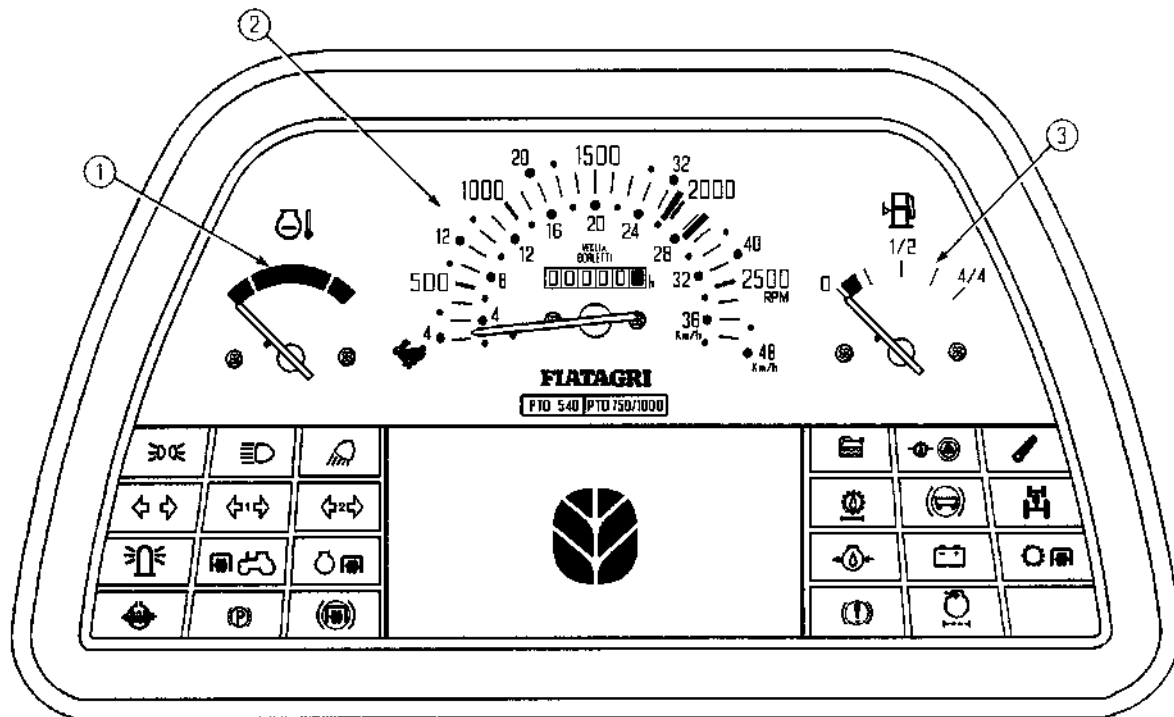
Alternator	
Type (3-phase, self-rectifying):	
– MARELLI	14V – 65 Amp
– BOSCH	14V – 65 Amp
Rated voltage	14V
Rotation (seen from pulley side)	clockwise
Cut-in speed at 12V 25°C (77°F):	
– MARELLI	≤ 1050 rpm
– BOSCH	≤ 1060 rpm
Current output at 14V across battery, at 7000 rpm (MARELLI) or 6000 rpm (BOSCH), after warm-up and with fully bedded in brushes	≥ 65 Amp
installed alternator speed, at engine governed speed (models F 100 – F 110 and F 120)	3680 rpm
Installed alternator speed, at engine governed speed (model F 130 and models F 100 – F 110 – F 120 with air conditioner)	5593 rpm
Engine/alternator speed ratio (models F 100 – F 110 – F 120)	1 : 1.6
Engine/alternator speed ratio (model F 130 and models F 100 – F 110 – F 120 with conditioner)	1 : 2.43

BATTERY

Type:	
– standard	MARELLI 12V – 132 Amp/h – 580 Amp
– optional	MARELLI 12V – 176 Amp/h – 770 Amp
Rated voltage	12V
Rated output (at 20-hour discharge rate):	
– MARELLI 12V – 132 Amp/h – 580 Amp	132 Amp/h
– MARELLI 12V – 176 Ahmp/h – 770 Amp	176 Amp/h

LIGHTING – SIGNALS – ACCESSORIES

Two asymmetrical headlights, high and low beam, 45/50W double-filament bulb (white or yellow light).
Two headlamps including:
– parking light (5W bulb) with white lens;
– turn signal light (21W bulb) with orange lens.
Two rear lamps including:
– parking light (5W bulb) with red lens (the LH side one also used for license plate lighting);
– turn-signal light (21W bulb) with orange lens;
– stop light (21W bulb) with red lens.
Two rear reflex glasses (red).
Instrument and control panel including multi-function indicators and functional checks (see pages 55–13, 55–14 and 55–15).
7-pole DIN power point.
2-pole power point.
Thermostarter or start-pilote.
Lighter.
Flasher for tractor and trailer emergency lights.

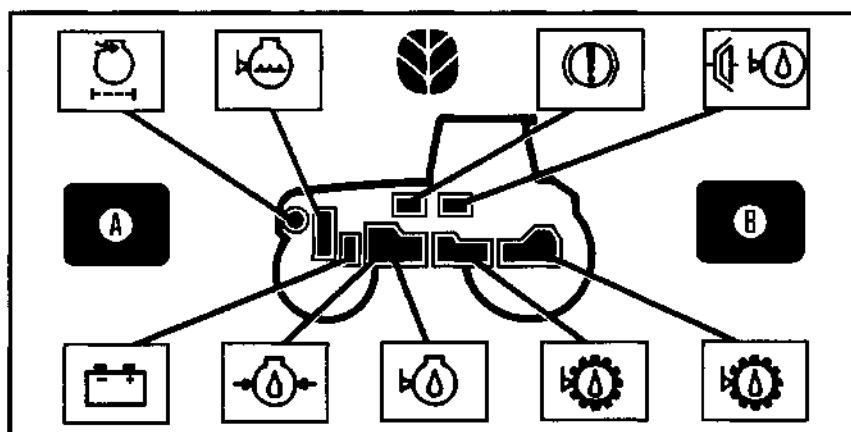
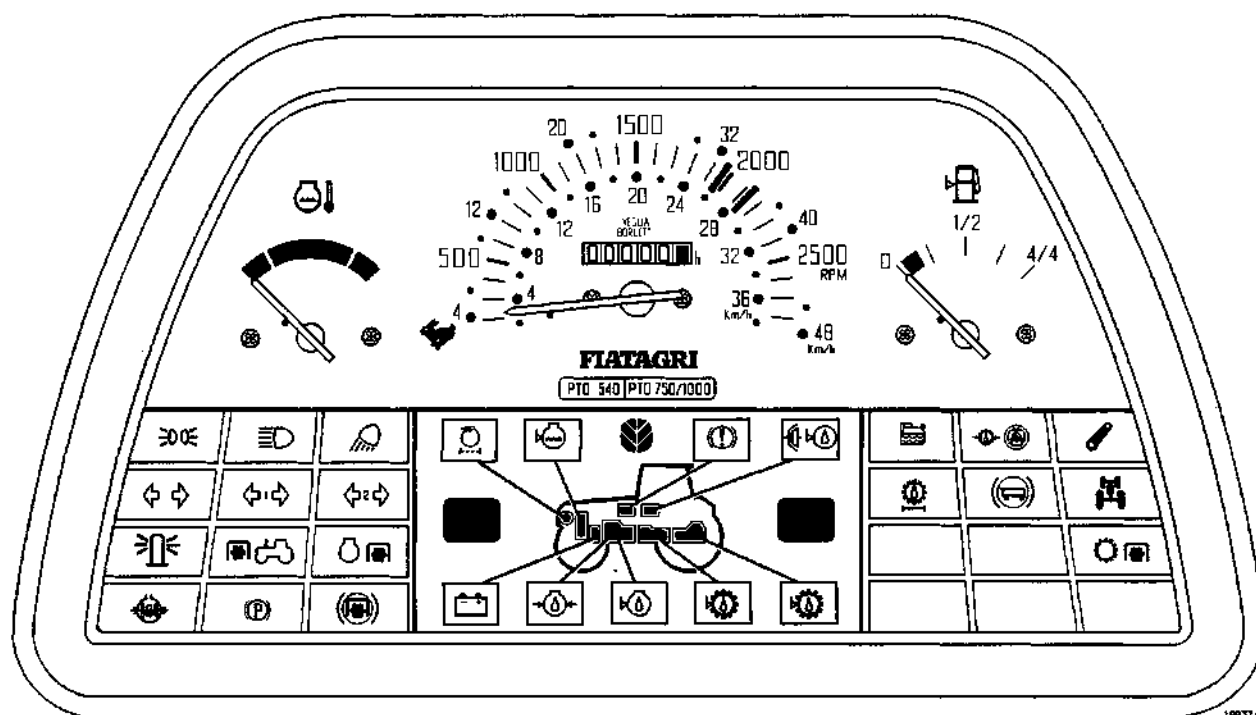


21587

STANDARD INSTRUMENT PANEL

1. Engine coolant temperature gauge – 2. Chronotachometer – 3. Fuel level gauge.

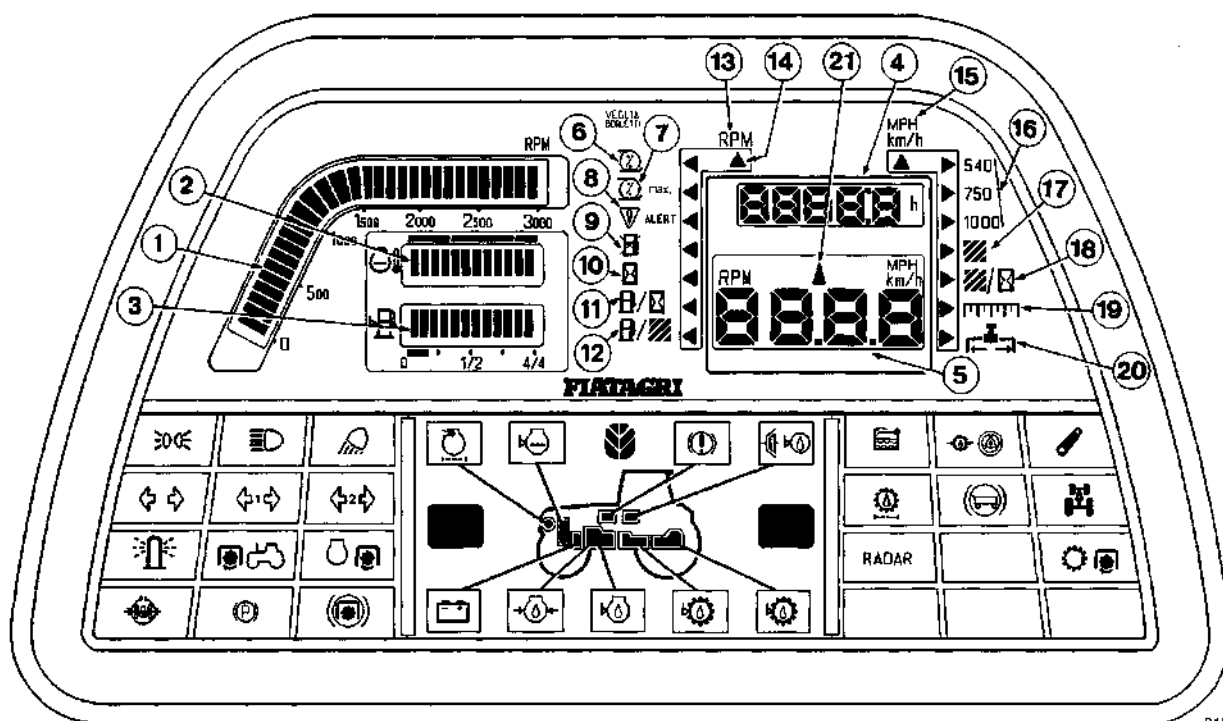
	Parking light indicator (green).		Condensate in fuel indicator (amber).
	Hi-beam headlight indicator (blue).		Low transmission or power steering oil level indicator (red).
	Auxiliary worklights indicator (amber)		Working front PTO indicator (amber).
	Tractor turn-signal indicator (green)		Clogged rear drive oil filter indicator (red).
	First trailer turn-signal indicator (green).		Engaged trailer brake indicator (red).
	Second trailer turn-signal indicator (green).		Engaged 4WD indicator (amber).
	Lighted gyrolight indicator (amber).		Low engine oil pressure indicator, w/in-built warning light (red).
	Engaged front PTO indicator (amber).		Faulty battery charging plant operation indicator, w/built-in warning light (red)
	Engaged rear PTO indicator (amber).		Engaged ground-speed PTO indicator (amber).
	Engaged differential lock indicator (amber).		Low brake fluid level indicator, w/built-in warning light (red).
	Engaged hand brake flasher light (red).		Low engine oil level indicator, w/built-in warning light (red).
	Engaged PTO brake indicator (amber).		



INSTRUMENT AND CHECK PANEL

Note – For remaining indicators and gauges not included in this figure, see the “Standard instrument panel”, page 55–13.

- | | | | |
|--|---|--|--|
| | Dry air cleaner restriction indicator (light blue). | | General indicator light (red). It will go on simultaneously with the indicator light of a defective function or component. It must remain off when everything is normal. |
| | Low engine coolant level indicator (light blue). | | Faulty battery charging plant operation indicator, w/in-built warning light (red). |
| | Low brake fluid level indicator (red). | | Low engine lube oil pressure indicator w/ built-in warning light (red). |
| | Low engine-transmission clutch control oil level indicator (yellow). | | Low engine oil level indicator, w/in-built warning light (red). |
| | General indicator warning light (green). It will go on when engine is shut off and starting switch key positioned on 1. It will go out about 10 seconds after the switch key is released from position. | | Low transmission, rear drive, power shift, power take-off and hydraulic lift oil level indicator (yellow). All lights will go on simultaneously. |

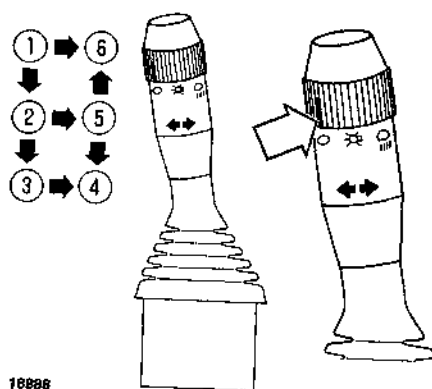


21598

OPTOELECTRONIC INSTRUMENT PANEL

1. Analogical revolution counter (each sector corresponds to 100 rpm) – 2. Analogical engine coolant temperature gauge – 3. Analogical fuel level gauge – 4. Hourmeter – 5. Liquid-crystal instrument visualizing the engine starting revs (all other indications obtained through the selection keyboard (4, page 55–16) – 6. Real-time reading of rear wheel slippage – 7. Maximum rear wheel slippage – 8. Self-diagnosis (code reader) – 9. Total fuel consumption (liters) from last RESET – 10. Fuel operating range (in hours) – 11. Fuel consumption rate (liters/hour) – 12. Fuel consumption in liters per hectare of ground work – 13. Engine revolutions – 14. Index of selected function – 15. Tractor ground speed – 16. PTO revolutions – 17. Total hectares of ground work – 18. Hectares worked per hour – 19. Distance (kilometers) covered by tractor with a lowered implement – 20. Implement width (meters) – 21. Raised lift rocker arms indicator.




Note – For remaining indicators and gauges not included in this figure, see pages 55–13 and 55–14.






18886


Lights, horn and turn-signal lights indicator switch (1, page 55–16).


Position 2 with knob index on following positions:


-  Lighting OFF.
-  Parking lights ON.
-  Hi-beam headlights ON.

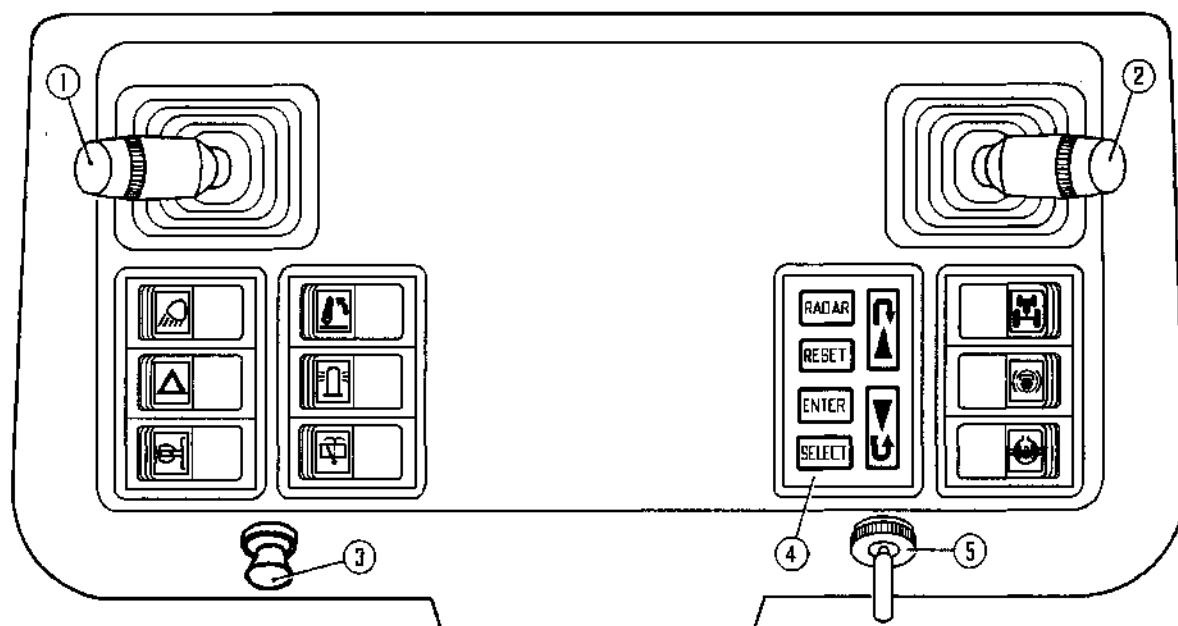
Position 5 with knob index on following positions:

-  Lighting OFF.
-  Parking lights ON and possibility of flashing with hi-beam headlights.
-  Low-beam lights on w/possibility of hi-beam flash lights.

 Horn: will work, by pressure, in every position of the lever.

 Turn-signal lights switch:
– positions 1 and 6: turn to right;
– positions 3 and 4: turn to left.

 From positions 4, 5 and 6 push the lever further to the right for hi-beam flashing lights.



21599

CONTROL BOARD

1. Lights, horn and turn-signal switch – 2. Windshield wiper switch – 3. Lighter – 4. Optoelectronic instrument keyboard control – 5. Engine starting switch.



Auxiliary worklights control switch.



Emergency lights control switch.



Thermostarter or start-pilote push-button control switch.



Front lift control switch.



Gyro safety light control switch.



Rear window wiper control switch.



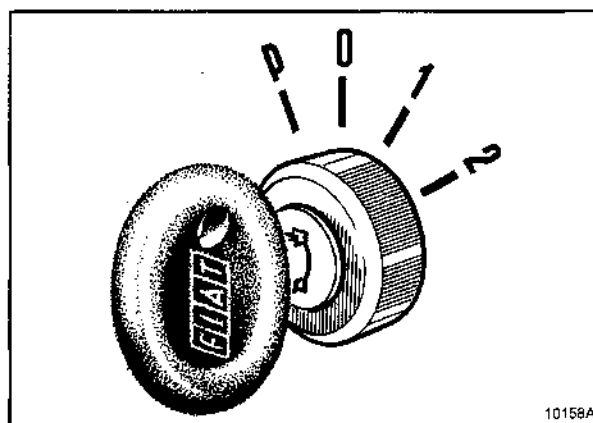
4WD engagement control switch.



PTO brake pre-setting control switch.



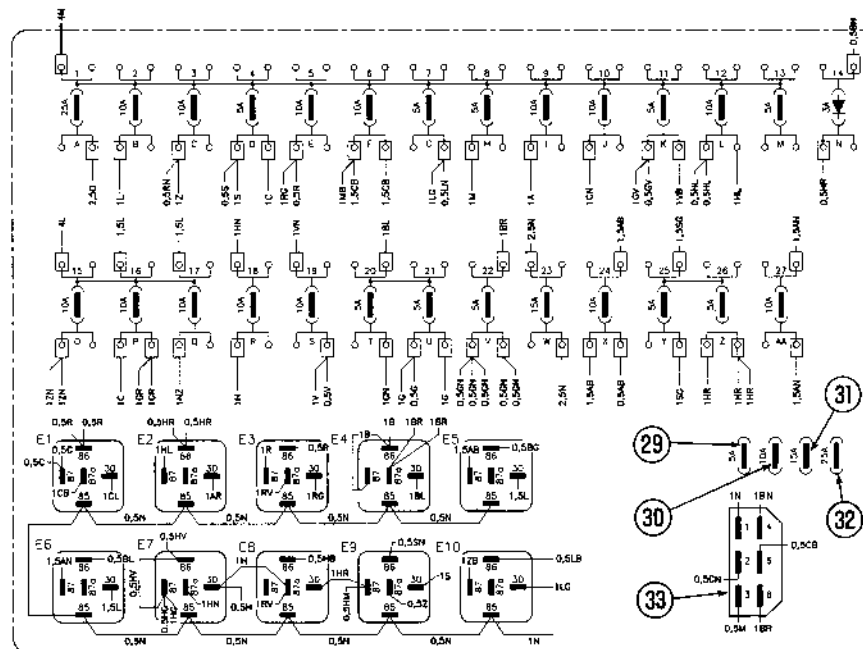
Differential lock push-button control switch.



10158A

Engine starting switch

- 0** Emergency lights and single-pole socket (key removable).
- 1** Pre-setting for engine starting. Indicator and check panel instruments activated. Miscellaneous application circuits energysed.
- 2** Engine starting (the key, if released, will return automatically to position 1).
- P** Parking lights ON (key removable).



21699

FUSES

Twenty-six fuses, of which eleven 5-amps, twelve 10-amps, two 15-amps, one 25-amps, four for spares (29, 30, 31 and 32, respectively 5 Ah, 10 Ah, 15 Ah and 25 Ah) and one diode (14).

Fuse	ASSOCIATED CIRCUITS	Ampere
1	Ventilation unit.	25
2	Turn-signal lights, check panel instruments.	10
3	Electric seat, radar for optoelectronic instrument.	5
4	4WD and rear PTO circuit.	5
5	Stop lights, differential lock.	10
6	PTO and front lift circuit.	10
7	HI-LO circuit.	5
8	Lift electronic control unit energysing.	5
9	Windshield wiper, glass washer pump.	10
10	Rear window wiper, glass washer pump.	10
11	Implement hydraulic control, sedimenter filter circuit.	5
12	Trailer brake, hydraulic system pressure-operated cut-off switch circuit.	10
13	Unused.	5
14	Trailer brake circuit diode.	—
15	Electric horn, lighter.	10
16	Cab light, emergency lights, cab electric clock, radio.	10
17	Gyro safety light.	10
18	Low-beam headlights.	10
19	Hi-beam headlights.	10
20	Front LH side and RH side parking lights.	5
21	Front RH side and rear LH side parking lights, lighted parking lamps indicator.	5
22	Control board and instrument panel lighting.	5
23	Thermostarter.	15
24	Cab rear floodlights.	10
25	Engine shut-off solenoid.	5
26	Instruments and gauges.	5
27	Cab front floodlights.	10

RELAYS

E1	4WD electro-hydraulic engagement relay.	E7	Rear power take-off circuit relay.
E2	Trailer brake circuit relay.	E8	Rear power take-off circuit relay.
E3	Stop lights and differential lock circuit relay.	E9	Ground-speed PTO safety relay.
E4	Hand brake indicator light circuit relay.	E10	HI-LO circuit relay.
E5	Cab rear floodlights relay.	33	Emergency light flasher switch.
E6	Cab front floodlights relay.		

**WIRING DIAGRAM
(Standard version)**

1. Multi-instrument and check panel comprehensive of:
 - a. parking lights indicator
 - b. hi-beam headlights indicator
 - c. auxiliary worklights indicator
 - d. tractor turn-signal lights indicator
 - e. 1st trailer turn-signal lights indicator
 - f. 2nd trailer turn-signal lights indicator
 - g. gyro safety light indicator
 - h. front power take-off indicator
 - i. rear power take-off indicator
 - k. differential lock indicator
 - l. hand brake indicator
 - m. rear power take-off pre-setting indicator
 - n. condensate in fuel indicator
 - o. transmission control oil pressure indicator
 - p. front lift indicator
 - q. clogged transmission oil filter indicator
 - r. trailer brake indicator
 - s. engaged 4WD indicator
 - t. low engine oil pressure indicator
 - u. alternator charge indicator
 - v. ground-speed PTO indicator
 - z1. dry air cleaner restriction indicator
 - z. low brake oil level indicator
 - w. lighting lamp
 - x. water temperature gauge
 - y. fuel level indicator.
2. Windshield wiper motor.
3. Lights switch.
4. Windshield wiper-washer tap switch.
5. Auxiliary worklights switch.
6. Front lift switch.
7. Emergency lights switch.
8. Thermostarter push-button control.
9. Gyro safety light switch.
10. Rear window glass wiper-washer switch.
11. 4WD switch.
12. Rear PTO brake pre-setting switch.
13. Differential lock switch.
14. Engine starting switch.
15. Electrical control unit comprehensive of:
 - 26 fuses
 - 1 diode holder, 1 amp–400 V
 - 1 electronic flasher
 - 10 micro-relays.
16. Lighter.
17. Engine starting inhibitor safety switch.
18. Brake fluid pressure-operated switch.

19. Connection block.
20. Ground.
21. Connectors, cab module, LH side.
22. Connectors, central and rear-end users.
23. Connectors, cab module, RH side.
24. Connectors, front-end users.
25. Brake fluid level control.
26. Engine-transmission clutch oil level control.
- E1. 4WD electro-hydraulic engagement relay.
- E2. Trailer brake circuit relay.
- E3. Stop lights and differential lock circuit relay.
- E4. Hand brake indicator circuit relay.
- E5. Cab rear floodlights relay.
- E6. Cab front floodlights relay.
- E7. Rear power take-off circuit relay.
- E8. Rear power take-off circuit relay.
- E9. Ground-speed PTO safety relay.
- E10. HI-LO unit circuit relay.

CABLE COLOUR CODE

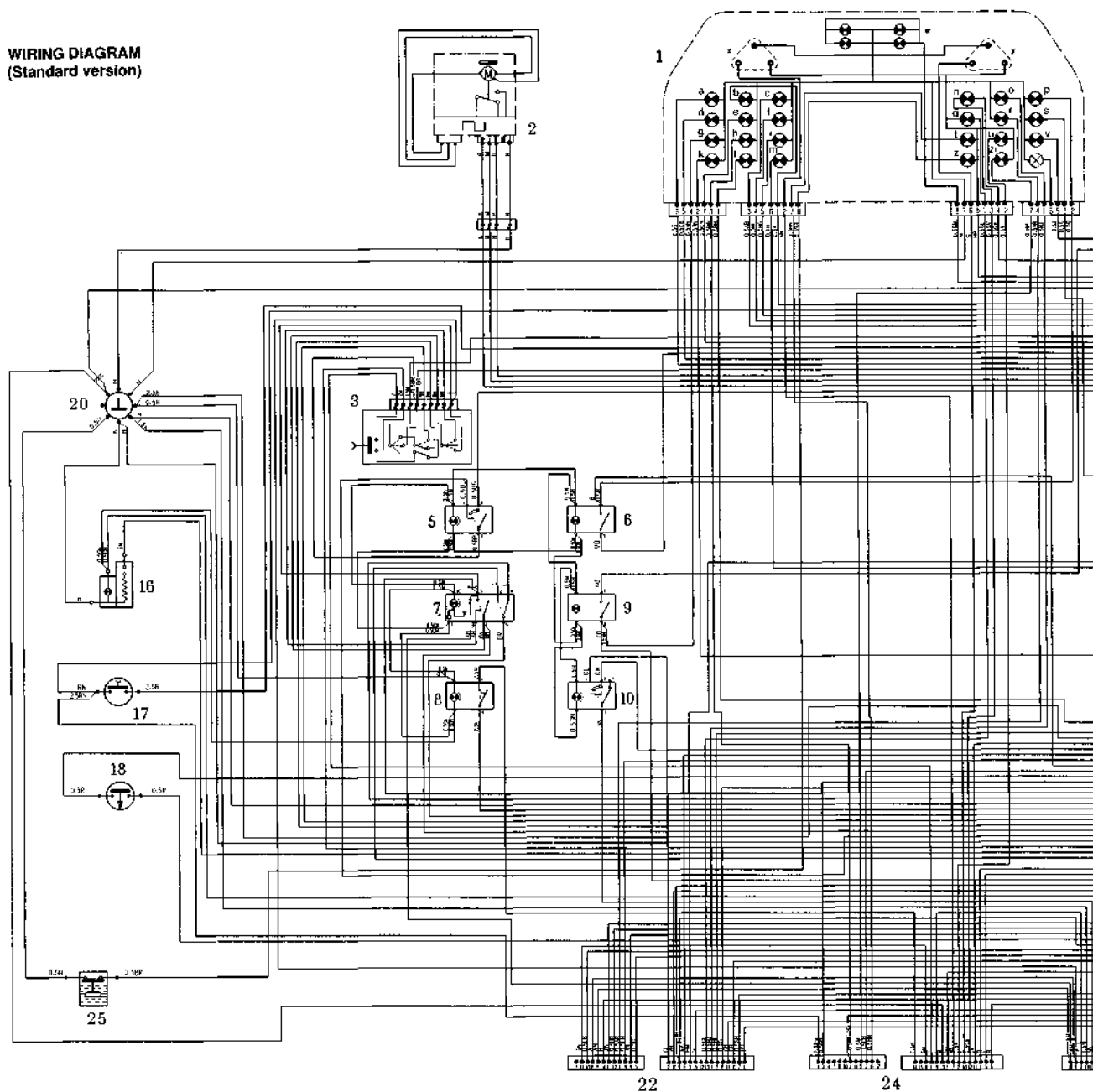
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AN = Light blue-Black	HG = Grey-Yellow
AG = Light blue-Yellow	L = Blue
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HN = Grey-Black	Z = Violet
HB = Grey-White	ZN = Violet-Black
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F100 - F110
F120 - F130

ELECTRIC SYSTEM

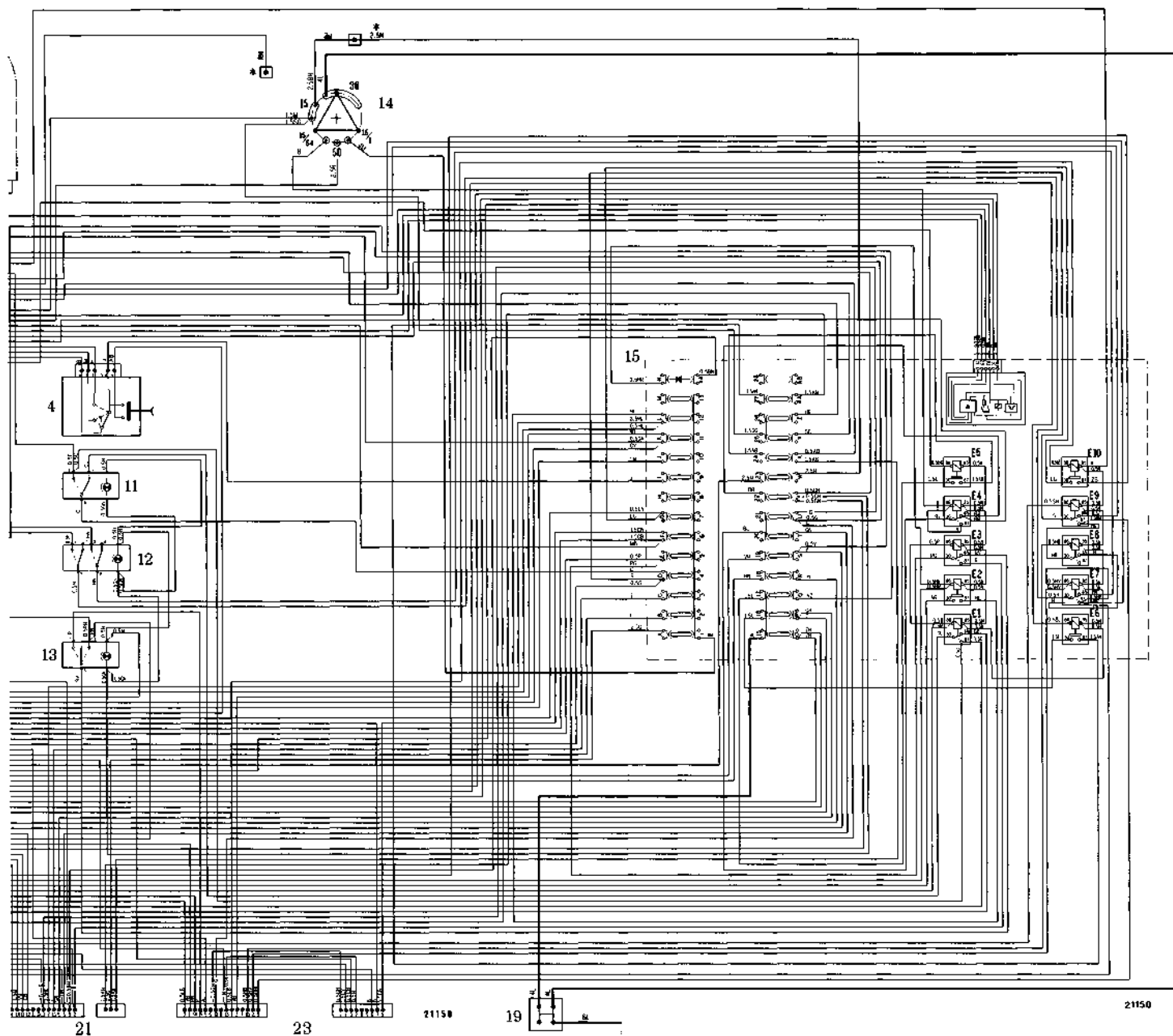
55 - 19

WIRING DIAGRAM
(Standard version)

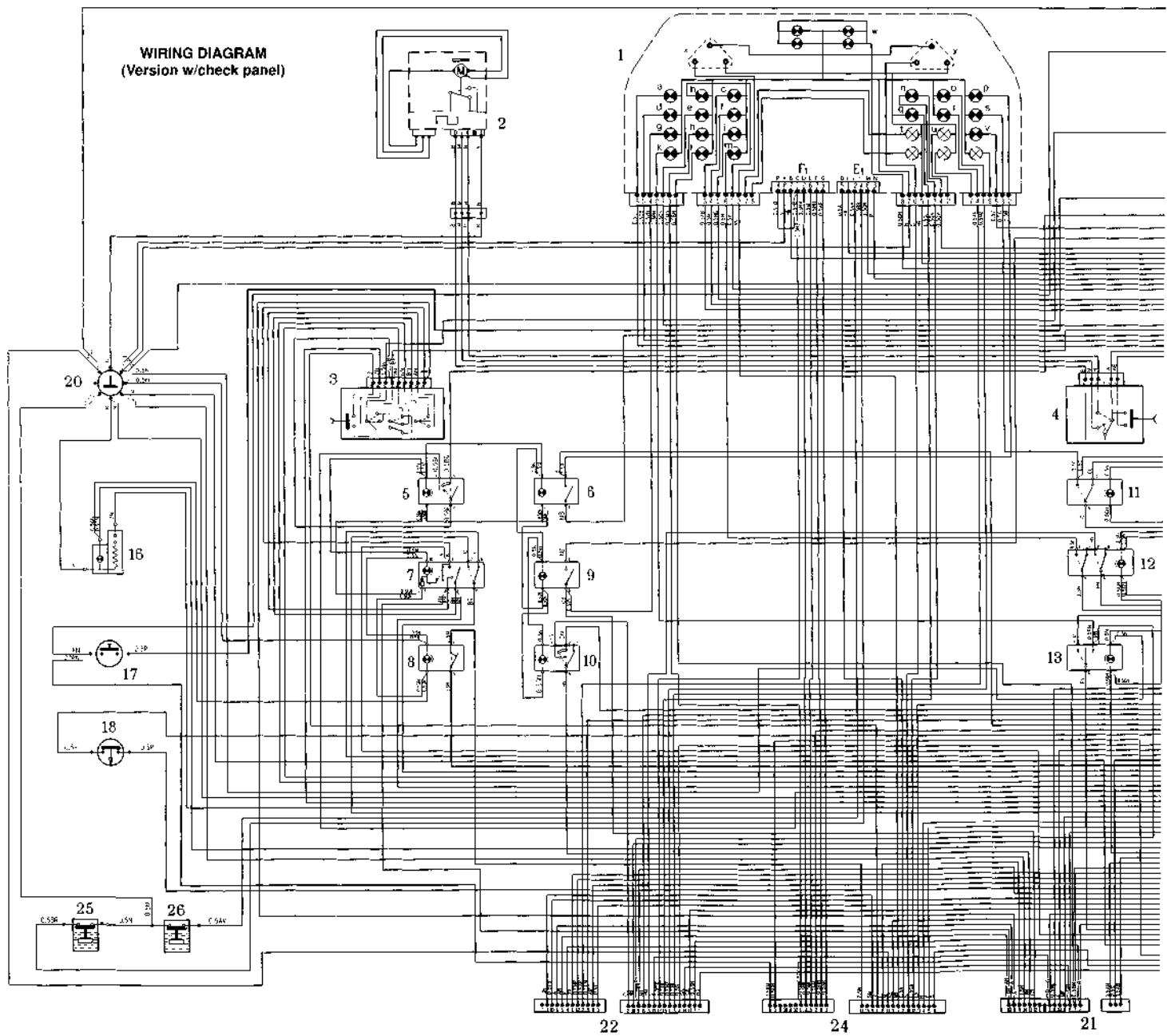


FIAT

Print No. 603.54.276.01 - 12 - 1992

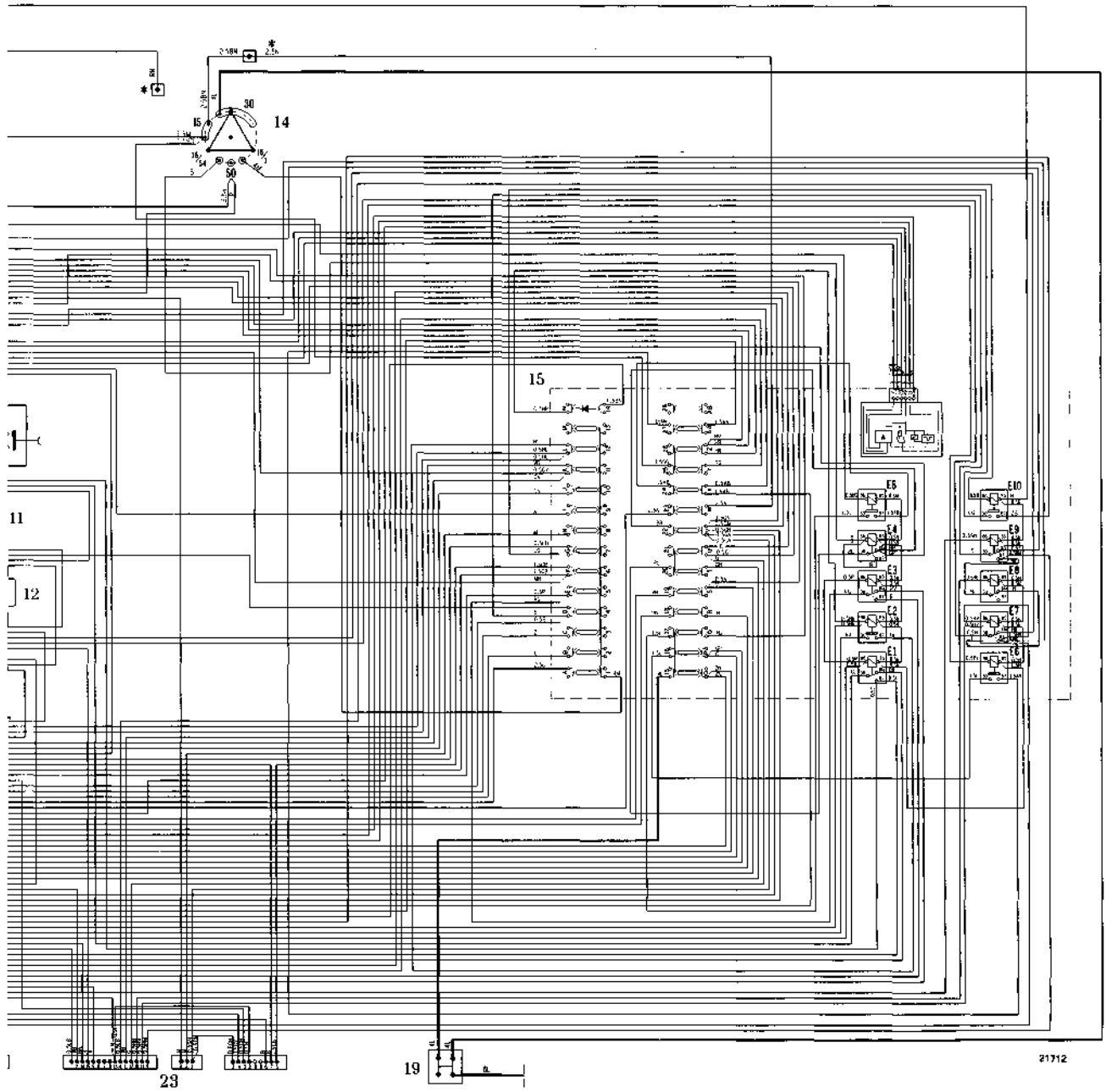


WIRING DIAGRAM
(Version w/check panel)



ELECTRIC SYSTEM

55 - 20a



Print No. 603.54.276.01 - 12 - 1992

**WIRING DIAGRAM
(Version w/check panel)**

1. Multi-instrument and check panel comprehensive of:
 - a. parking lights indicator
 - b. hi-beam headlights indicator
 - c. auxiliary worklights indicator
 - d. tractor turn-signal lights indicator
 - e. 1st trailer turn-signal lights indicator
 - f. 2nd trailer turn-signal lights indicator
 - g. gyro safety light indicator
 - h. front power take-off indicator
 - i. rear power take-off indicator
 - k. differential lock indicator
 - l. hand brake indicator
 - m. rear power take-off pre-setting indicator
 - n. condensate in fuel indicator
 - o. transmission control oil pressure indicator
 - p. front hydraulic lift indicator
 - q. clogged transmission oil filter indicator
 - r. trailer brake indicator
 - s. engaged 4WD indicator
 - v. ground-speed PTO indicator
 - w. lighting lamp
 - x. water temperature gauge
 - y. fuel level indicator**E1-F1** Check panel module connectors comprehensive of:
 - A** ground indicator
 - B-H + 15/54** of starter switch
 - C-P** transmission oil level indicator
 - D** coolant level indicator
 - E** dry air cleaner restriction indicator
 - F** engine oil pressure indicator
 - G** engine oil level indicator
 - I** engine-transmission clutch oil level indicator
 - L** brake oil level indicator
 - M** lighting
 - N** starter switch indicator
 - O** alternator charge indicator
2. Windshield wiper motor.
3. Lights switch.
4. Windshield wiper-washer tap switch.
5. Auxiliary worklights switch.
6. Front lift switch.
7. Emergency lights switch.
8. Thermostarter push-button control.
9. Gyro safety light switch.
10. Rear window glass wiper-washer switch.
11. 4WD switch.
12. Rear power take-off brake pre-setting switch.
13. Differential lock switch.
14. Engine starting switch.
15. Electrical control unit comprehensive of:
 - 26 fuses
 - 1 diode holder 1amp – 400V

- 1 electronic flasher
- 10 micro-relay
- 16. Lighter.
- 17. Engine starting inhibitor safety switch.
- 18. Brake fluid pressure-control switch.
- 19. Connection block.
- 20. Ground.
- 21. Connectors, cab module, LH side.
- 22. Connectors, central and rear end users.
- 23. Connectors, cab module, RH side.
- 24. Connectors, front-end users.
- 25. Brake oil level control.
- 26. Engine-transmission clutch oil level control.
- E1.** 4WD electro-hydraulic engagement keyboard control.
- E2.** Trailer brake circuit relay.
- E3.** Stop lights and differential lock circuit relay.
- E4.** Hand brake indicator relay.
- E5.** Cab rear floodlights relay.
- E6.** Cab front floodlights relay.
- E7.** Rear power take-off circuit relay.
- E8.** Rear power take-off circuit relay.
- E9.** Ground-speed PTO safety relay.
- E10.** HI-LO unit circuit relay.

CABLE COLOUR CODE

A = Light blue	HV = Grey-Green
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HB = Grey-White	ZN = Violet-Black
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WIRING DIAGRAM (Version w/optoelectronic instrument)

1. Multi-instrument and check panel comprehensive of:

- a. parking lights indicator
- b. hi-beam headlights indicator
- c. auxiliary worklights indicator
- d. tractor turn-signal lights indicator
- e. 1st trailer turn-signal lights indicator
- f. 2nd trailer turn-signal lights indicator
- g. gyro safety light indicator
- h. front power take-off indicator
- i. rear power take-off indicator
- k. differential lock indicator
- l. hand brake indicator
- m. rear power take-off pre-setting indicator
- n. condensate in fuel indicator
- o. transmission control oil pressure indicator
- p. front hydraulic lift indicator
- q. clogged transmission oil filter indicator
- r. trailer brake indicator
- s. engaged 4WD indicator
- v. ground-speed PTO indicator
- w. lighting lamp
- x. water temperature gauge
- y. fuel level indicator
- 1g – 1h. Check panel module connectors comprehensive of:
 - A ground indicator
 - B–H + 15/54 of starter switch
 - C–P transmission oil level indicator
 - D coolant level indicator
 - E dry air cleaner restriction indicator
 - F engine oil pressure indicator
 - G engine oil level indicator
 - I engine-transmission clutch oil level indicator
 - L brake oil level indicator
 - M lighting
 - N starter switch indicator
 - O alternator charge indicator
 - 1a – 1b – 1c – 1d – 1e – 1f Connectors for optoelectronic instrument.

- 2. Windshield wiper motor.
- 3. Lights switch.
- 4. Windshield wiper-washer tap switch.
- 5. Auxiliary worklights switch.
- 6. Front lift switch.
- 7. Emergency lights switch.
- 8. Thermostarter push-button control.
- 9. Gyro safety light switch.
- 10. Rear window glass wiper-washer switch.
- 11. 4WD switch.
- 12. Rear power take-off brake pre-setting switch.
- 13. Differential lock switch.
- 14. Engine starting switch.
- 15. Electrical control unit comprehensive of:
 - 26 fuses
 - 1 diode holder 1amp – 400V

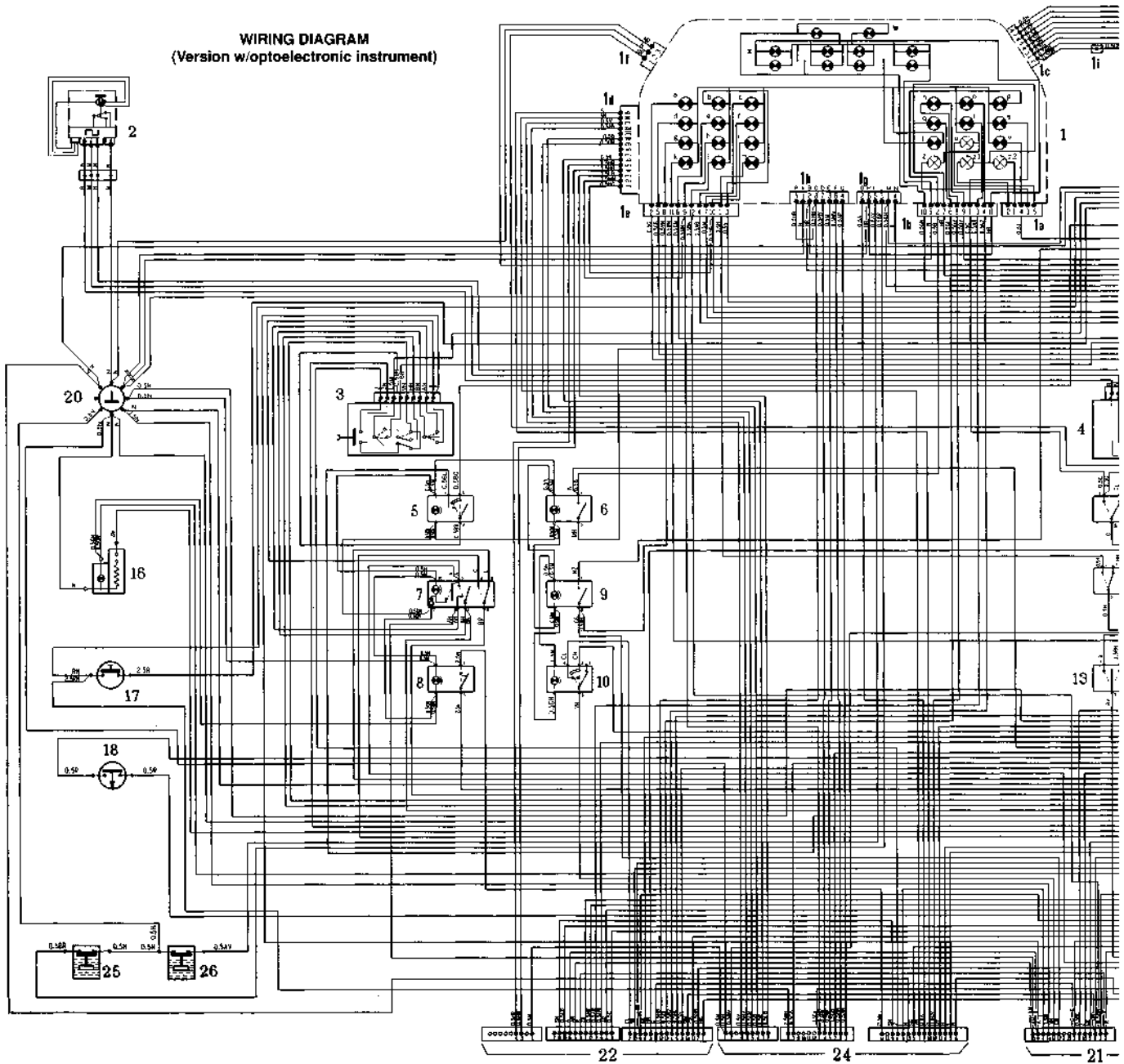
- 1 electronic flasher
- 10 micro-relay

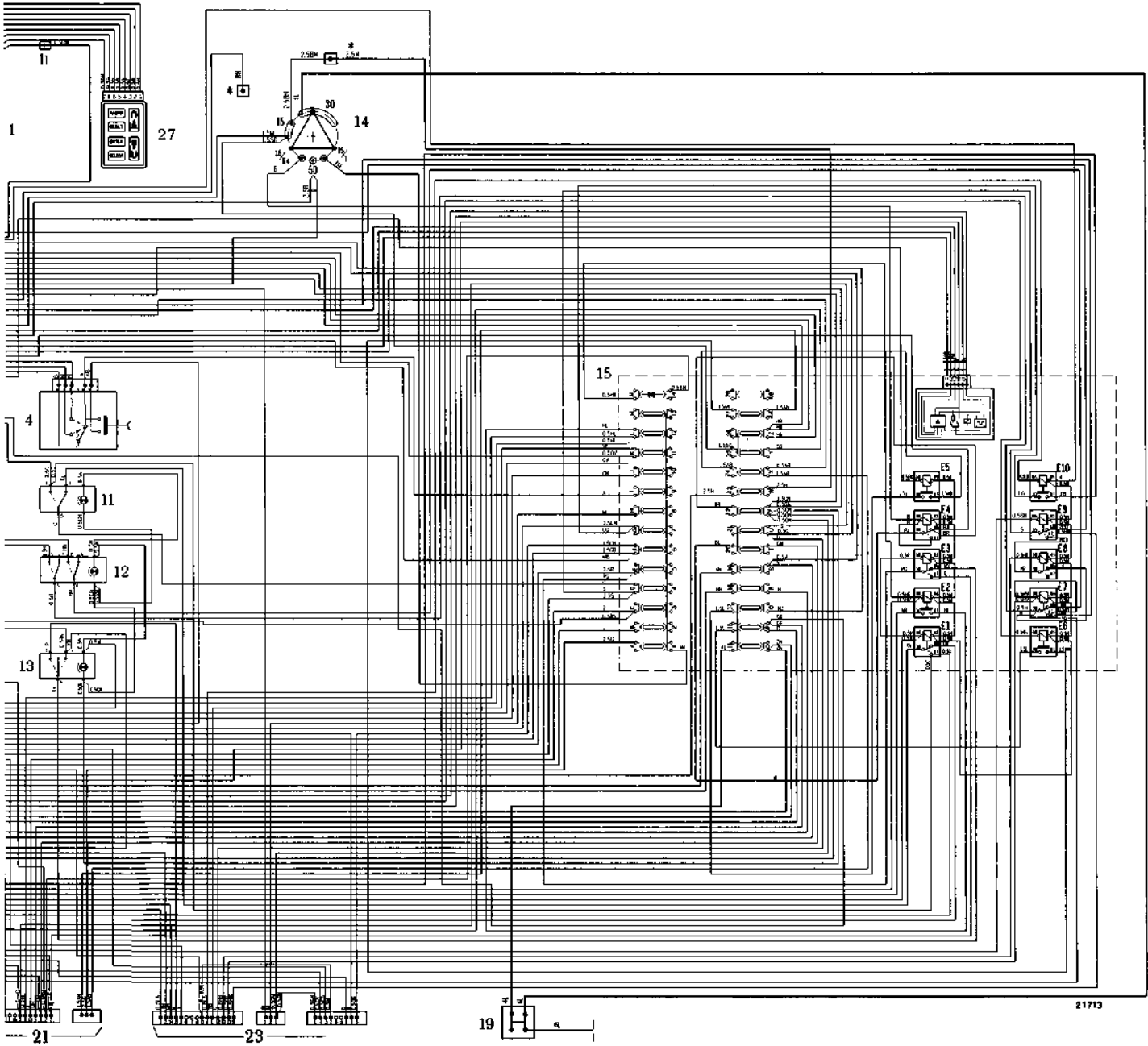
- 16. Lighter
- 17. Engine starting inhibitor safety switch.
- 18. Brake fluid pressure-control switch.
- 19. Connection block.
- 20. Ground.
- 21. Connectors, cab module, LH side.
- 22. Connectors, central and rear end users.
- 23. Connectors, cab module, RH side.
- 24. Connectors, front-end users.
- 25. Brake oil level control.
- 26. Engine-transmission clutch oil level control.
- 27. Optoelectronic instrument keyboard control.
- E1. 4WD electro-hydraulic engagement keyboard control.
- E2. Trailer brake circuit relay.
- E3. Stop lights and differential lock circuit relay.
- E4. Hand brake indicator relay.
- E5. Cab rear floodlights relay.
- E6. Cab front floodlights relay.
- E7. Rear power take-off circuit relay.
- E8. Rear power take-off circuit relay.
- E9. Ground-speed PTO safety relay.
- E10. HI-LO unit circuit relay.

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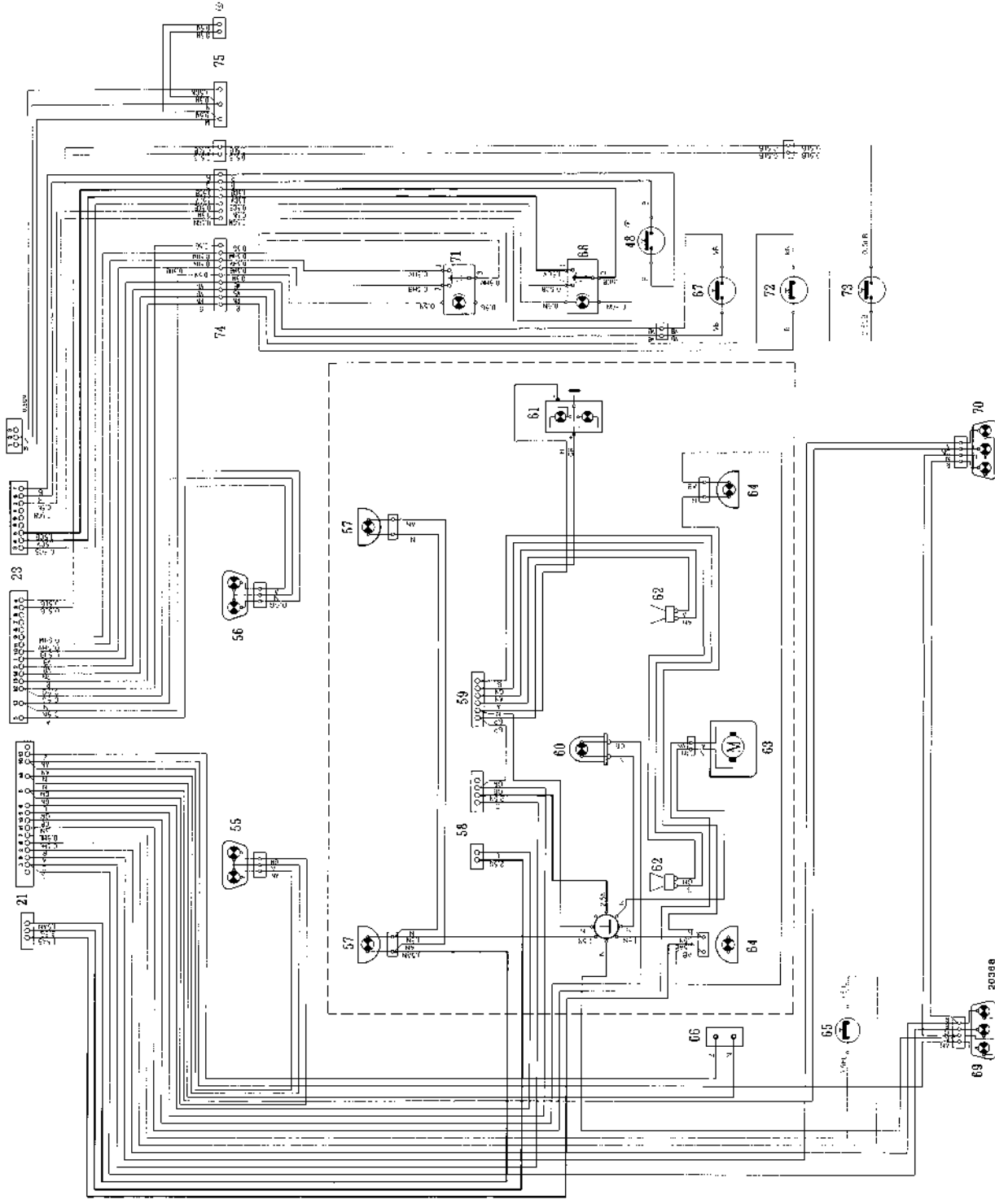
WIRING DIAGRAM
(Version w/optoelectronic instrument)





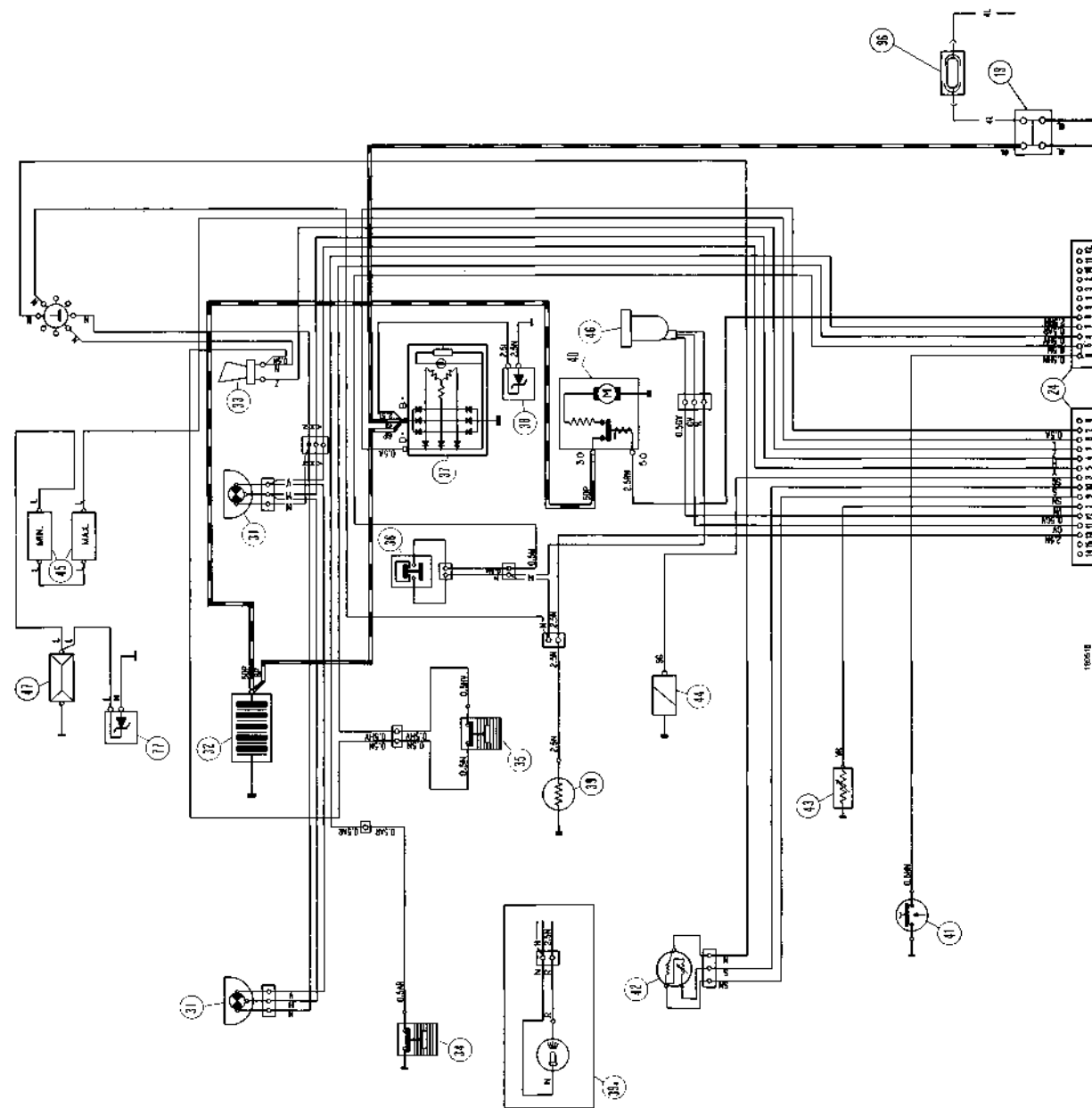
WIRING DIAGRAM

- (From connectors 21 and 23 to cab module)
- 21 Connectors for cab LH side module (see main diagram).
- 23 Connectors for cab RH side module (see main diagram).
- 48 Micro-switch for front lift setting adjustments.
- 55 Front LH side lamp, turn and parking lights.
- 56 Front RH side lamp, turn and parking lights.
- 57 Auxiliary front floodlights.
- 58 Connector, ventilation unit.
- 59 Connector, radio.
- 60 Gyro safety light.
- 61 Ceiling lamp, w/ built-in switch.
- 62 Loudspeakers.
- 63 Rear window glass wiper motor.
- 64 Auxiliary rear floodlights.
- 65 Engaged hand brake indicator switch.
- 66 Connector for electric seat.
- 67 Push-button control for implement hydraulically-operated setting adjustments.
- 68 Front power take-off control switch (optional).
- 69 Tail lamp, LH side, w/parking, turn-signal, stop and license plate lights.
- 70 Tail lamp, RH side, w/parking, turn-signal and stop lights.
- 71 Rear power take-off control switch.
- 72 Control switch, differential lock w/ lift-O-Matic.
- 73 Switch, transmission w/ H-L-Q.
- 74 Connectors, intermediate.
- 75 Intermediate connectors for electronic-control hydraulic lift.



CABLE COLOUR CODE

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BR	=	White-Red	MB	=	Brown-White
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CB	=	Orange-White	NR	=	Black-Red
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GV	=	Yellow-Green	RV	=	Red-Green
GR	=	Yellow-Black	S	=	Pink
GL	=	Yellow-Red	SN	=	Pink-Black
GI	=	Yellow-Blue	SG	=	Pink-Yellow
I	=	Gray	V	=	Green
IM	=	Gray-Brown	VN	=	Green-Black
IR	=	Gray-Red	VB	=	Green-White
IN	=	Gray-Black	Z	=	Violet
IB	=	Gray-White	ZN	=	Violet-Black
IL	=	Gray-Blue	ZB	=	Violet-White



WIRING DIAGRAM

(From connectors 24 to front-end users)

19. Connection block (see main diagram).
24. Connectors for front-end users (see main diagram).
31. Headlights.
32. Battery.
33. Horn
34. Engine oil level control.
35. Coolant level control.
36. Dry air cleaner restriction indicator.
37. Alternator.
38. Voltage peaks protection device.
39. Thermostat.
- 39a. Start-pilot.
40. Engine starting motor.
41. Engine oil pressure switch.
42. Fuel level control switch.
43. Electric thermometer sending unit.
44. Engine shut-off solenoid.
45. Receiver-drier filter.
46. Fuel sediment filter.
47. Connectors to compressor (air conditioner).
77. Voltage peaks protection device (air conditioner).
96. 25-amp fuse tubular sheath.

CABLE COLOUR CODE

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GN	=	Yellow-Black	SN	=	Pink-Black
GR	=	Yellow-Red	SG	=	Pink-Yellow
GL	=	Yellow-Blue	V	=	Green
H	=	Grey	VN	=	Green-Black
HM	=	Grey-Brown	VB	=	Green-White
HR	=	Grey-Red	Z	=	Violet
HN	=	Grey-Black	ZN	=	Violet-Black
HB	=	Grey-White	ZB	=	Violet-White
HL	=	Grey-Blue			

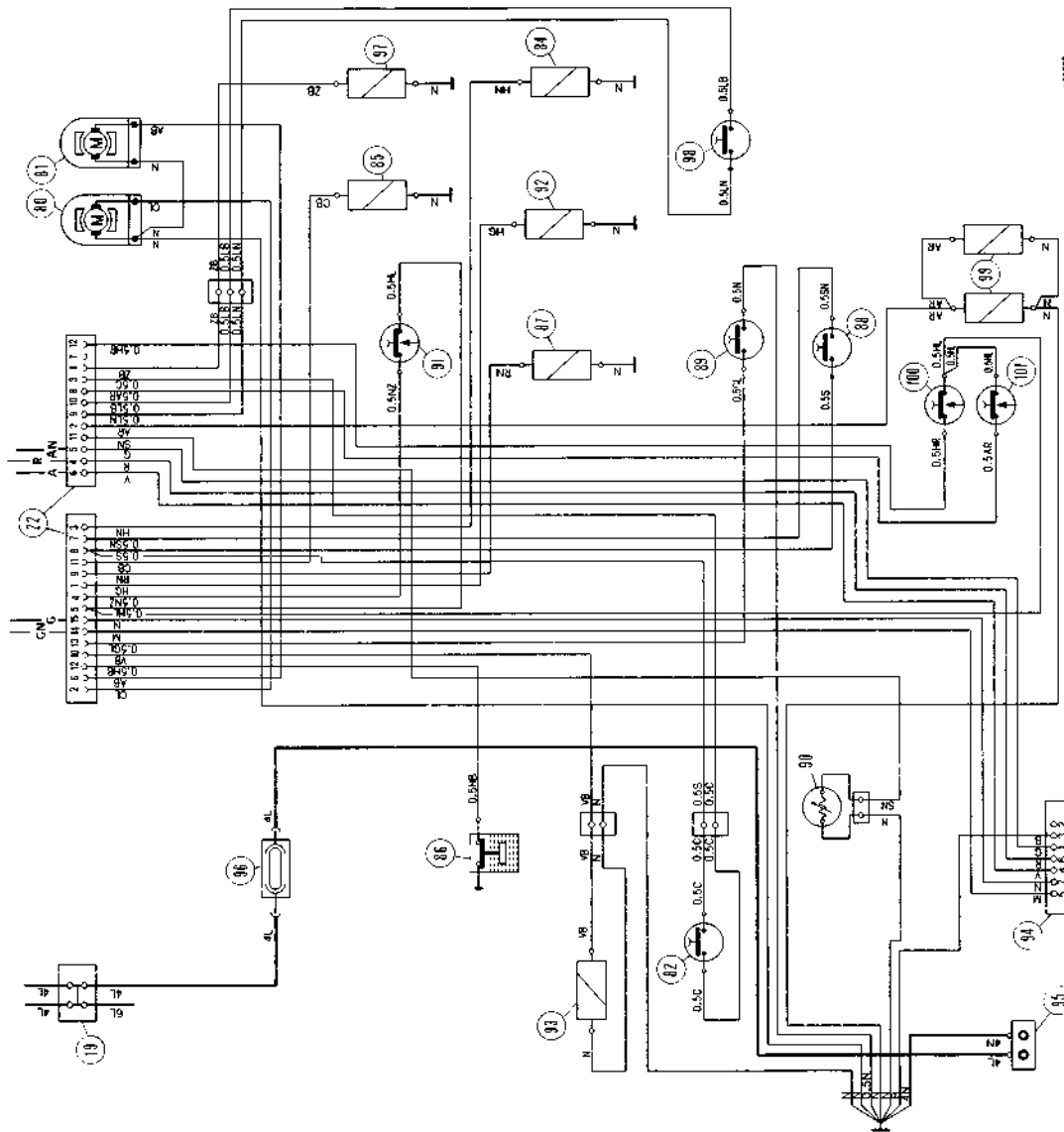
WIRING DIAGRAM

(From connectors 22 to central and rear users)

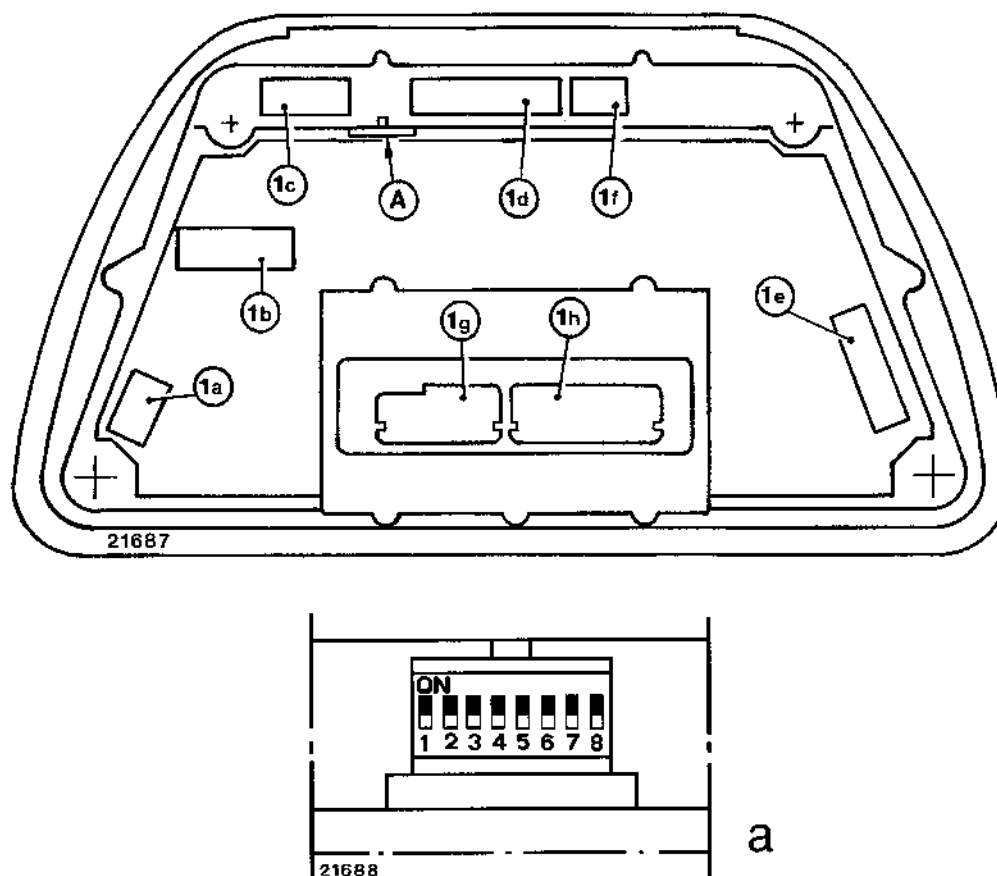
19. Connection block (see main diagram).
 22. Connectors for central and rear-and users (see main diagram).
 80. Rear window glass washer pump.
 81. Windshield washer pump.
 82. Engaged mechanical 4WD indicator switch.
 84. Power take-off brake electro-valve.
 85. 4WD electro-valve.
 86. Transmission oil level control.
 87. Differential lock electro-valve.
 88. Ground-speed PTO switch.
 89. Clogged transmission oil filter indicator.
 90. Fuel level indicator control.
 91. Hydraulic system indicator pressure-operated switch.
 92. Rear power take-off electro-valve.
 93. Electro-valve for implement hydraulically-operated setting adjustments.
 94. 7-pole power point.
 95. 25-amp, 2-pole socket.
 96. 25-amp fuse tubular sheath.
 97. Electro-valve, transmission w/HI-LO.
 98. Reverser lever switch, transmission w/HI-LO.
 99. Trailer brake electro-valve.
 100. Trailer brake circuit, pressure-operated safety switch.
 101. Engaged trailer brake indicator pressure-operated switch.

CABLE COLOUR CODE

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BR	=	White-Red	MB	=	Brown-White
BN	=	White-Black	MN	=	Brown-Black
BL	=	White-Blue	N	=	Black
BG	=	White-Yellow	NZ	=	Black-Violet
C	=	Orange	NB	=	Black-White
CB	=	Orange-White	NR	=	Black-Red
CN	=	Orange-Black	R	=	Red
CL	=	Orange-Blue	RG	=	Red-Black
G	=	Yellow	RV	=	Red-Yellow
GV	=	Yellow-Green	SG	=	Green
GN	=	Yellow-Black	S	=	Pink
GR	=	Yellow-Red	SN	=	Pink-Black
GL	=	Yellow-Blue	SG	=	Pink-Yellow
H	=	Grey	V	=	Green
HM	=	Grey-Brown	VN	=	Green-Black
HR	=	Grey-Rad	VB	=	Green-White
HN	=	Grey-Black	Z	=	Violet
HB	=	Grigio-Bianco	ZN	=	Viola-Nero
HL	=	Grigio-Blu	ZB	=	Viola-Bianco



160528



INSTRUMENT PANEL – REAR VIEW

a. Micro-switch compartment detail – A. Micro-switch (a) compartment lid – 1a, 1b, 1c, 1d, 1e, 1f, 1g, and 1h. Connectors, panel w/optoelectronic instrument.

OPTOELECTRONIC INSTRUMENT PANEL CALIBRATION MICRO-SWITCHES

Micro-switch functions

no. 1 and 2 : selection of unit of measurement;	no. 4 and 5 : tractor series selection;
no. 3 : radar type selection;	no. 6 and 7 : tank capacity selection.

Micro-switch position per Market

European markets

n. 1 = OFF
n. 2 = OFF
n. 3 = ON
n. 4 = ON
n. 5 = ON
n. 6 = ON
n. 7 = ON

English-speaking markets

n. 1 = ON
n. 2 = ON
n. 3 = ON
n. 4 = ON
n. 5 = ON
n. 6 = ON
n. 7 = ON

North-American market

n. 1 = ON
n. 2 = OFF
n. 3 = ON
n. 4 = ON
n. 5 = ON
n. 6 = ON
n. 7 = ON



a. Discharge control electro-valve – b. Delivery control electro-valve – c. Lifting control switch (left fender) – d. Lowering control switch (left fender) – e. Lifting control switch (right fender) – f. Lowering control switch (right fender) – g. Left draft sensor – h. Right draft sensor – D. Fuse no. 8 inside control unit (15, page 55–49) – E. Fuse no. 22 inside control unit (15, page 55–49) – F. Braided-wire shield for sensor (106) cable harness – 20. Instrument panel ground – 23. Connector for cab module, RH side – 75. Intermediate connector for electronic lift – 79. Electronic control external controls (see c–d–e–f) – 83. Intermediate connector for electronic lift external controls – 102. Relay cluster – 103. Electronic lift control electro-valves (a=discharge, b=delivery) and associated connector – 104. Connector between relays cluster and connector (74) – 105. Draft sensor intermediate connector – 106. Draft sensors and associated connectors (g=left sensor, h=right sensor) – 107. Electronic control unit and associated connector – 108. Connector between electronic control unit and relay cluster (102) – 109. TESTER **294009** connector – 120. Position sensor and associated connector.

A = Light blue – **AB** = Light blue–White – **B** = White – **BN** = White–Black – **BR** = White–Red – **G** = Yellow – **GN** = Yellow–Black – **H** = Grey – **HN** = Grey–Black – **L** = Blue – **M** = Brown – **N** = Black – **R** = Red – **RN** = Red–Black – **S** = Pink – **SN** = Pink–Black – **V** = Green – **Z** = Violet.

HI-LO SAFETY SWITCH
Replacement (Op.21 168 62)

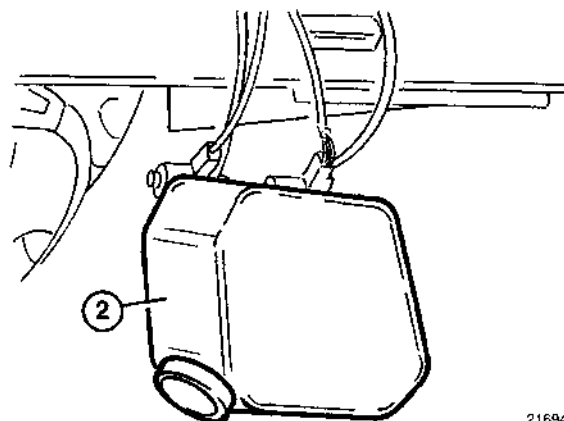
Proceed as follows:

CAUTION

Handle all parts with great care. Do not put hands or fingers between parts.
Wear safety equipment such as goggles, gloves and special shoes.

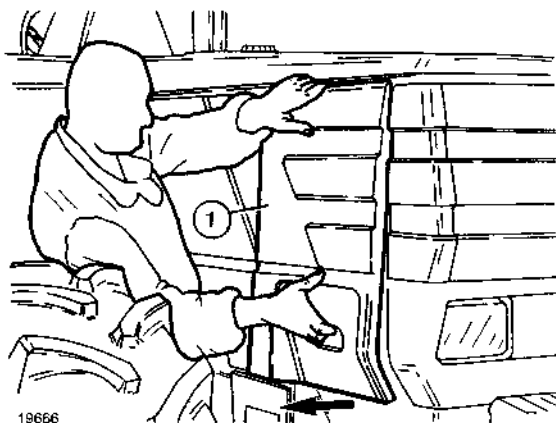
CAUTION

Use suitable tools to align holes. **DO NOT USE FINGERS OR HANDS.**



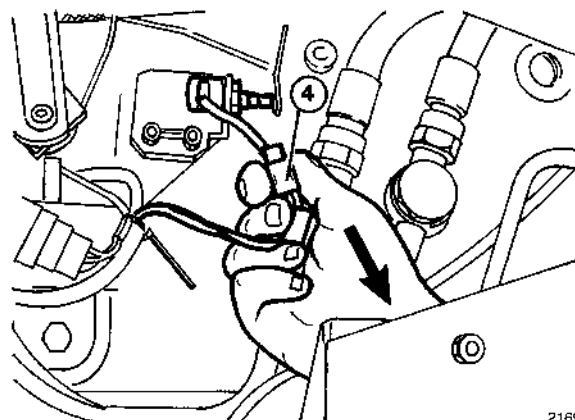
21694

3. Empty and then remove tank (2) from its supporting bracket.



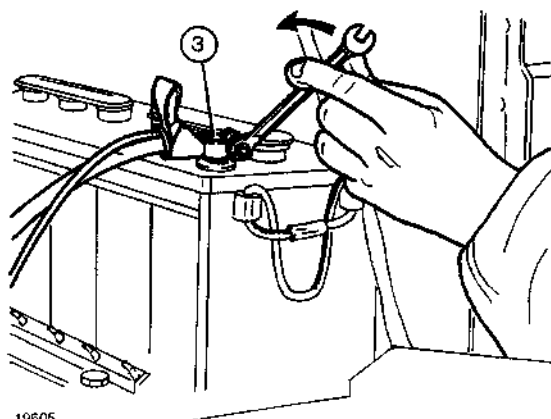
19666

1. Remove the side front panel (1) from the RH side of the tractor.



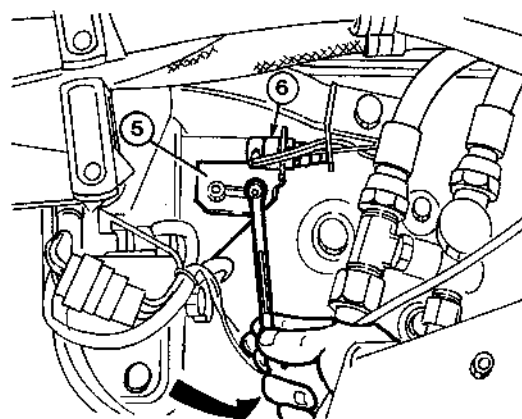
21695

4. Disconnect connector (4) from the HI-LO safety switch.



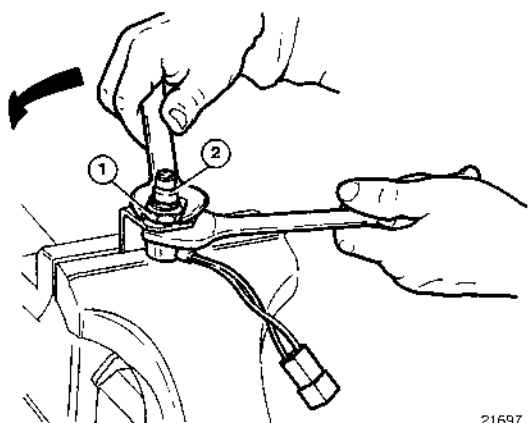
19605

2. Disconnect cable (3) from the positive pole of the battery and insulate it.

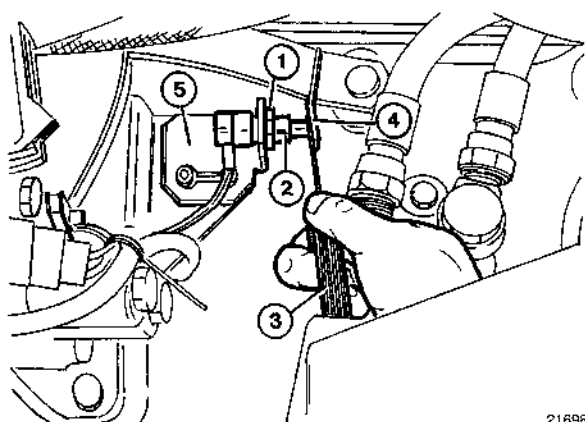


21696

5. Remove retaining screws and mounting bracket (5) together with the HI-LO safety switch (6).



6. Remove jam nut (1) first and then the HI-LO safety switch (2).
7. Re-assemble the HI-LO safety switch and re-install it on the clutch-transmission case in accordance with the following directions:
 - a. proceed by reversing the removal and disassembly sequence of operations starting from no. 6 back to no. 1;
 - b. carry on adjustments further described on this page.



8. Set the reverser control lever in neutral.
9. Check, using feeler gauge (3), the distance between switch (2) and reverser control lever (4): 0.5 to 1 mm (.020 to .040 in). If a different value is found, move switch (2) nearer or farther, as follows: loosen screws and act on bracket (5) or directly on the switch after loosening jam nut (1). Finally, tighten jam nut (1) or the screws of the mounting bracket (5).

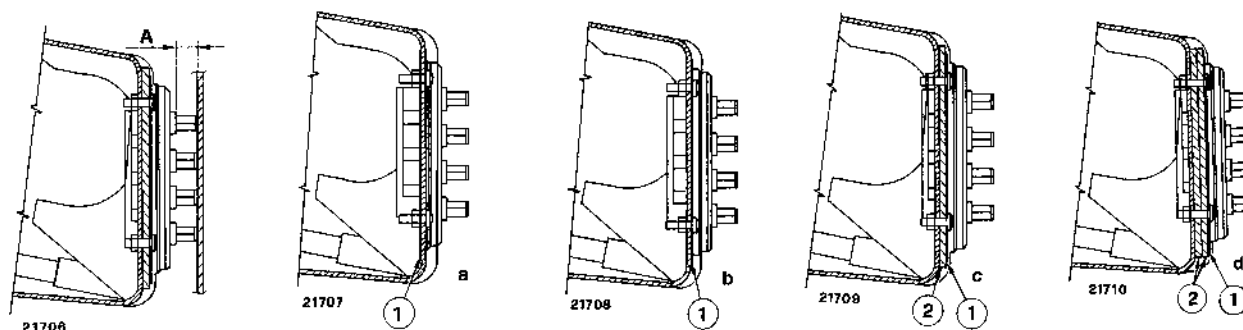
ADJUSTING THE WINDSHIELD GLASS WIPER ELECTRICAL CONTACTS ON CABS W/OPENING WINDSHIELD

Install and secure on the windshield the wiper assembly, taking care to position plate (1) and spacer (2) as shown in the accompanying figure, detail (c).

Close windshield tight and, using a suitable tool, check distance (A) between the support for adjustable contacts and the fixed contact plate: 5 to 7 mm or .20 to .28 in (measured on upper contact).

If the distance found differs from the above specification, proceed as follows:

1. If distance (A) is less than 5 mm or .20 in, loosen contacts because excessively pre-loaded. To do it, remove spacer (2) (as shown in b) and if not sufficient move plate (1) from the outside towards the inside of case (see illustration detail a).
2. If distance (A) is more than 7 mm (.28 in), move contacts closer because they are not sufficiently pre-loaded. To do it, add a second spacer (2), as shown in detail d.



ADJUSTING THE WINDSHIELD ELECTRICAL CONTACTS

A = 5 to 7 mm (.20 to .28 in). Distance between mobile contacts and fixed contact plate – 1. Sheet-metal plate – 2. Spacers.