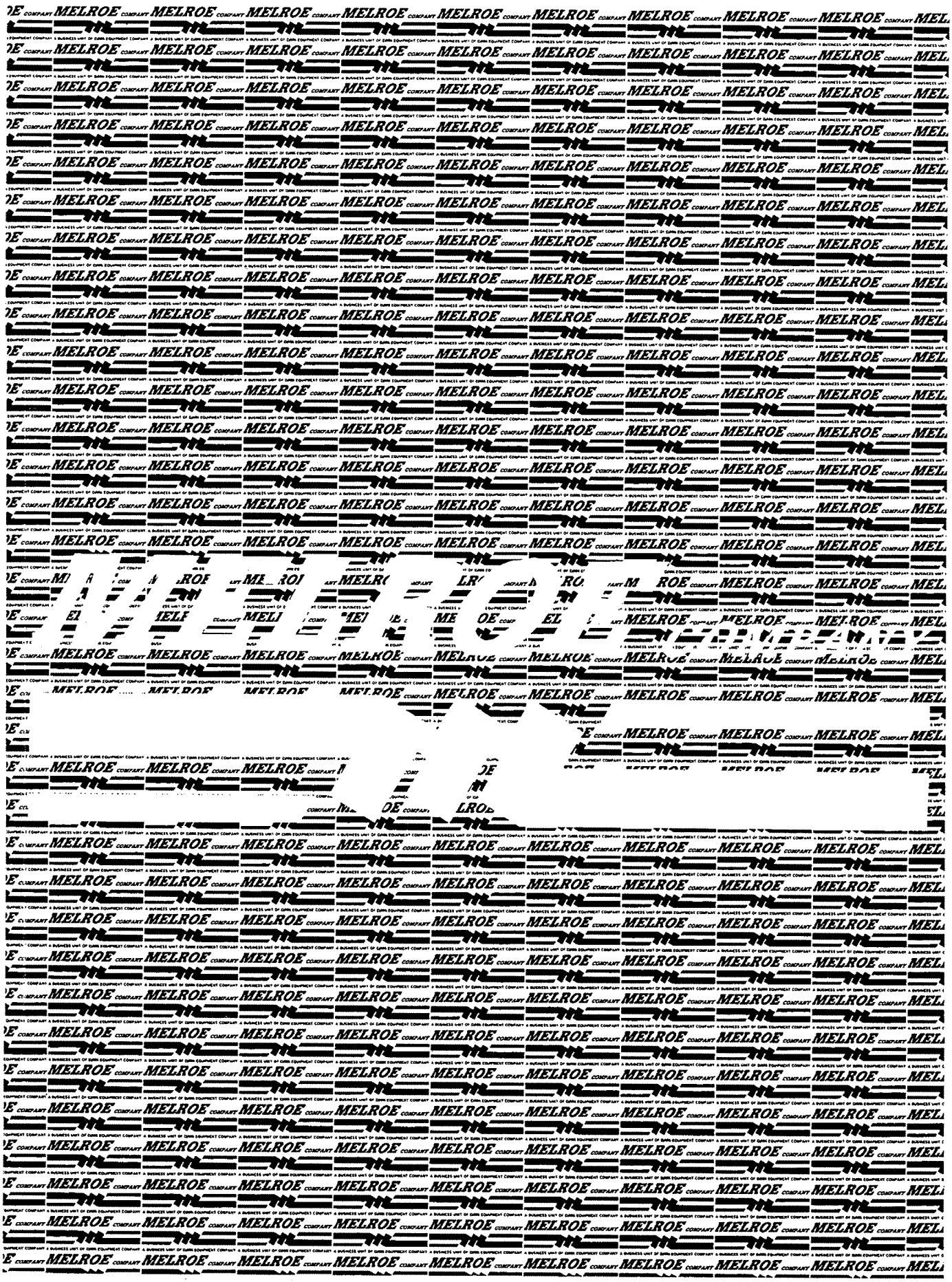
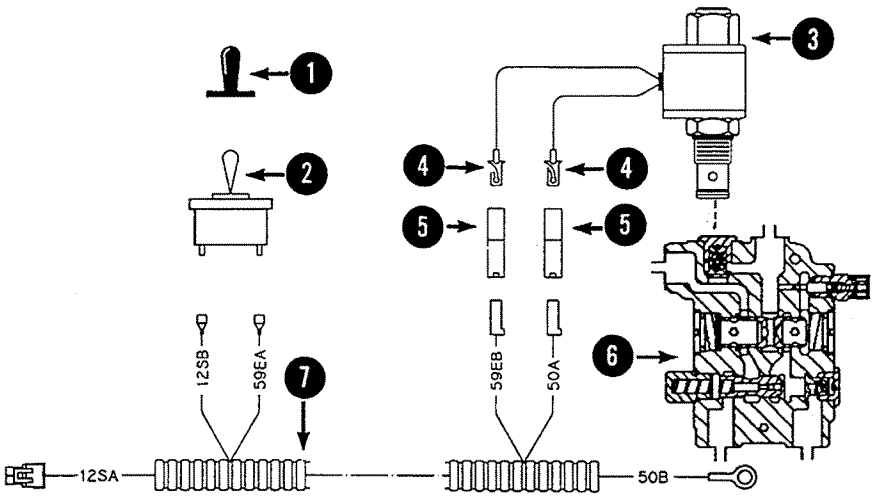

MELROE COMPANY
A BUSINESS UNIT OF DARR EQUIPMENT COMPANY

ELECTRICAL SYSTEM

A BUSINESS UNIT OF CLARK EQUIPMENT COMPANY

WIRING DIAGRAM (P/N 6722195)
BUCKET POSITION VALVE LOCKOUT (OPTIONAL)
Model 753, 7753, 843, 843B & 853
(Printed April 1992)



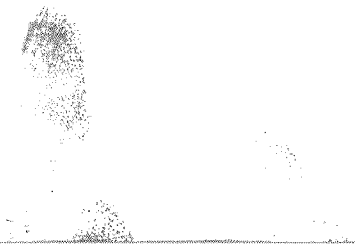
MC-1450
MC-1118

WIRE LEGEND

WIRE NO.	COLOR	CONNECTS TO
12S-A	Orange	Loader Wiring Harness Fused & Switched Power
12S-B	Orange	Switch
59E-A	Orange	Switch
59E-B	Orange	Solenoid
50-A	Black	Solenoid
50-B	Black	Ground

PARTS LEGEND

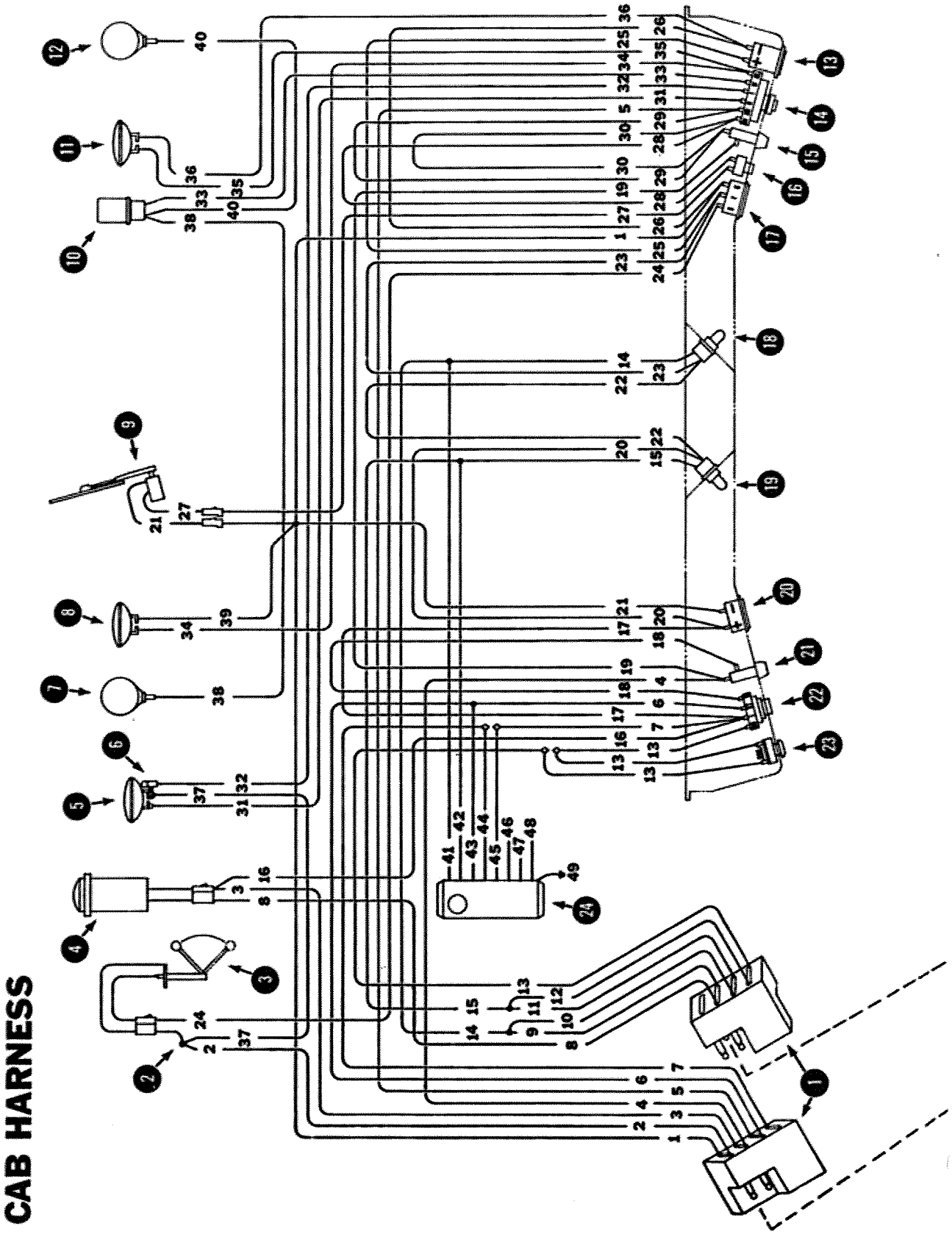
1. Switch Cover
2. Switch
3. Solenoid
4. Terminal
5. Connector
6. Bucket Position Valve
7. Wiring Harness



WIRING DIAGRAM (P/N 6570239)

843 (S/N 12999 & Below)

(Printed December 1985)



CAB HARNESS

WIRE LEGEND

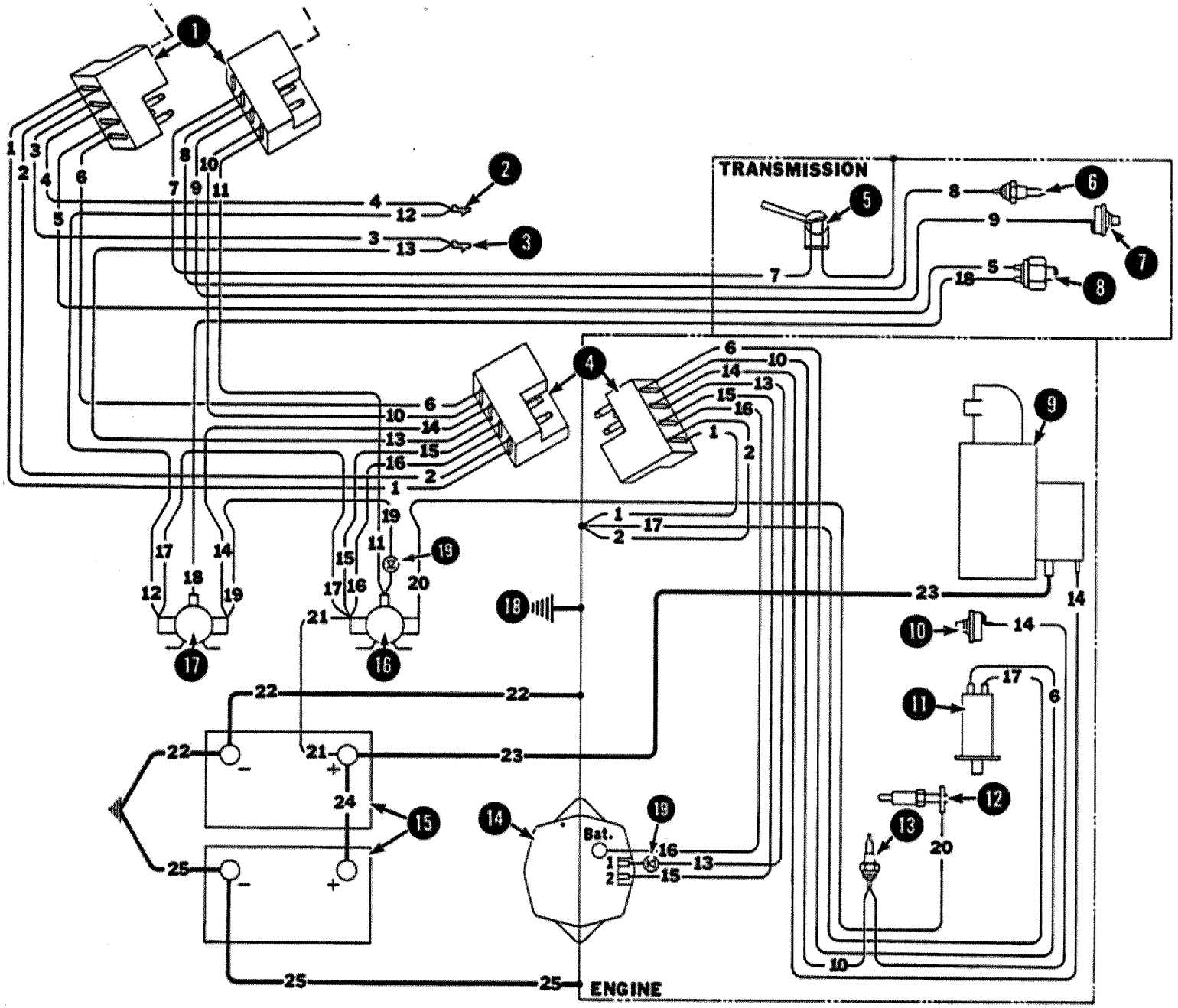
NO.'s	COLOR	GAUGE
1	Black	16
2	Black	16
3	Orange	16
4	Orange	12
5	Orange/White	16
6	White	16
7	Lt. Blue	16
8	Orange/Green	16
9	Yellow/Black	18
10	Yellow	18
11	White/Purple	18
12	Purple	18
13	Lt. Blue/Black	16
14	Yellow	18
15	Purple	18
16	Orange	16
17	Orange	16
18	White/Orange	16
19	Orange/Dk. Blue	16
20	Orange	18
21	Black	16
22	Orange	18
23	Orange	18
24	Dk. Green/Yellow	16
25	Orange	18
26	Black	16
27	Orange/Black	16
28	Orange/Black	16
29	Orange/Dk. Blue	16
30	Orange/Dk. Blue	16
31	White/Dk. Blue	16
32	Pink	16
33	Brown	16
34	Dk. Blue	16
35	Black	16
36	Black	16
37	Black	16
38	Brown	16
39	Black	16
40	Brown	16
41	Yellow	16
42	Purple	16
43	White	16
44	Lt. Blue	16
45	Red	16
46	Orange (Not Used)	16
47	Grey (Not Used)	16
48	Brown (Not Used)	16
49	Black	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Fuel Sender
4. Back-Up Alarm (Opt.)
5. Rear Lamp
6. Tail Lamp
7. Left Flasher Lamp (Opt.)
8. Left Front Lamp
9. Wiper Motor (Opt.)
10. Flasher (Opt.)
11. Right Front Lamp
12. Right Flasher Lamp (Opt.)
13. Hourmeter
14. Light Switch
15. Fuse - Accessory
16. Wiper Switch (Opt.)
17. Fuel Gauge
18. Trans. Warning Light
19. Engine Warning Light
20. Voltmeter
21. Fuse - Ignition
22. Ignition Switch
23. Glow Plug Indicator (543 Only)
24. Shut-Down Module (Opt.)

● Tee splice

○ Butt splice



ENGINE HARNESS

ENGINE HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
1	Black	16
2	Black	16
3	White/Orange	16
4	Orange	12
5	White/Green	16
6	White/Black	16
7	Orange/Green	16
8	Yellow/Black	16
9	Yellow	16
10	Purple	16
11	Lt. Blue/Black	16
12	Orange	12
13	White/Lt. Green	16
14	White	12
15	Lt. Green	16
16	Orange	12
17	Orange	12
18	White/Orange	16
19	White/Green	16
20	Lt. Blue/Orange	8
21	Red	Cable
22	Black	Cable
23	Red	Cable
24	Red	Cable
25	Black	Cable

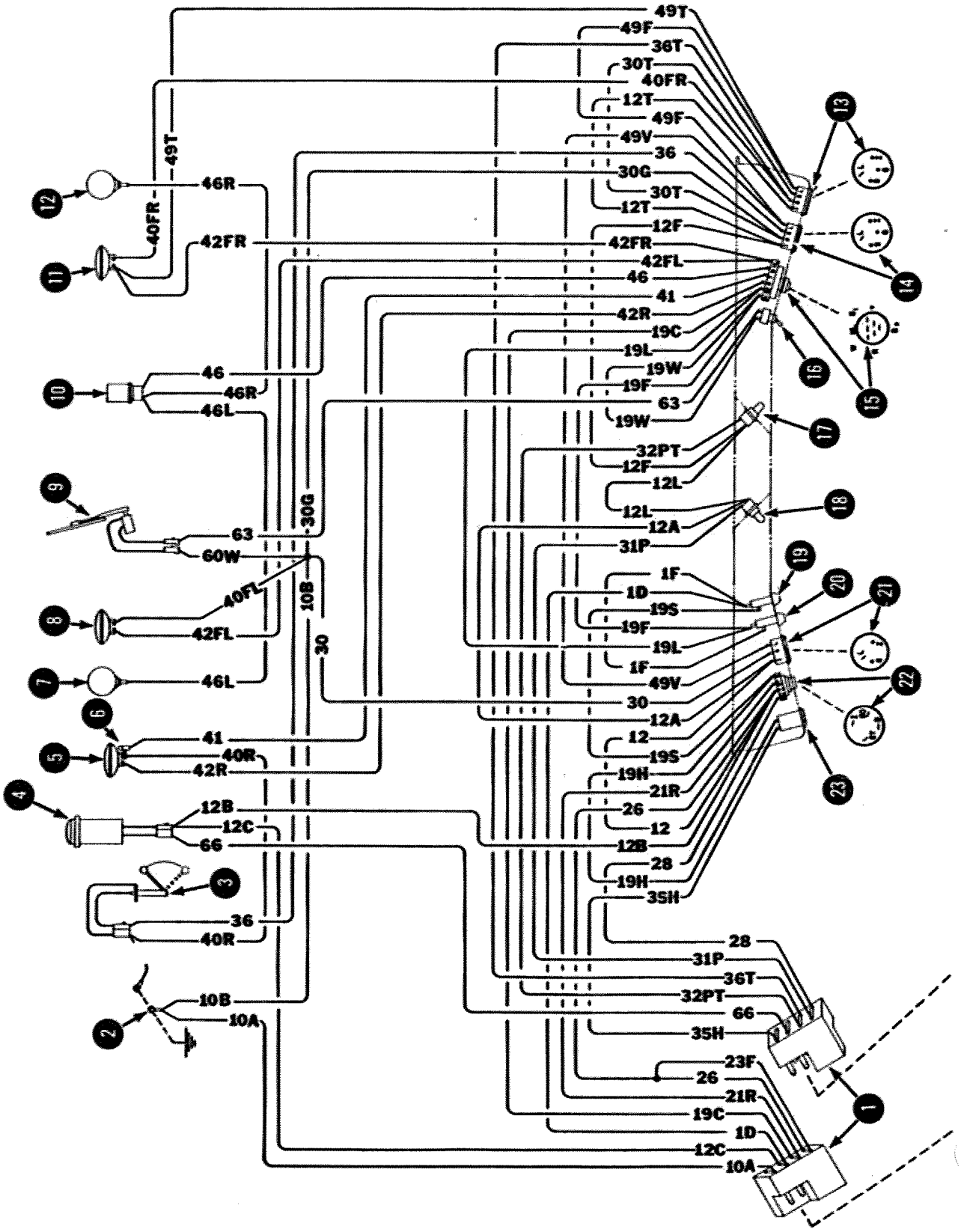
PARTS LEGEND

1. Harness Connectors
2. Unfused & Live Accessories
3. Fuse and Live Accessories
4. Engine Connector
5. Back-Up Alarm Switch (Opt.)
6. Trans. Oil Temperature
7. Trans. Charge Pressure
8. Brake Switch
9. Starter
10. Engine Oil Pressure
11. Fuel Shut-Off Solenoid
12. Thermo-Start or Glow Plug
13. Engine Coolant Temperature
14. Alternator
15. Batteries
16. Pre-Heat Relay
17. Start Relay
18. Frame Ground
19. Diode

WIRING DIAGRAM (P/N 6566813)

843 (S/N 13001 Thru 19999)

(Printed December 1985)



CAB HARNESS

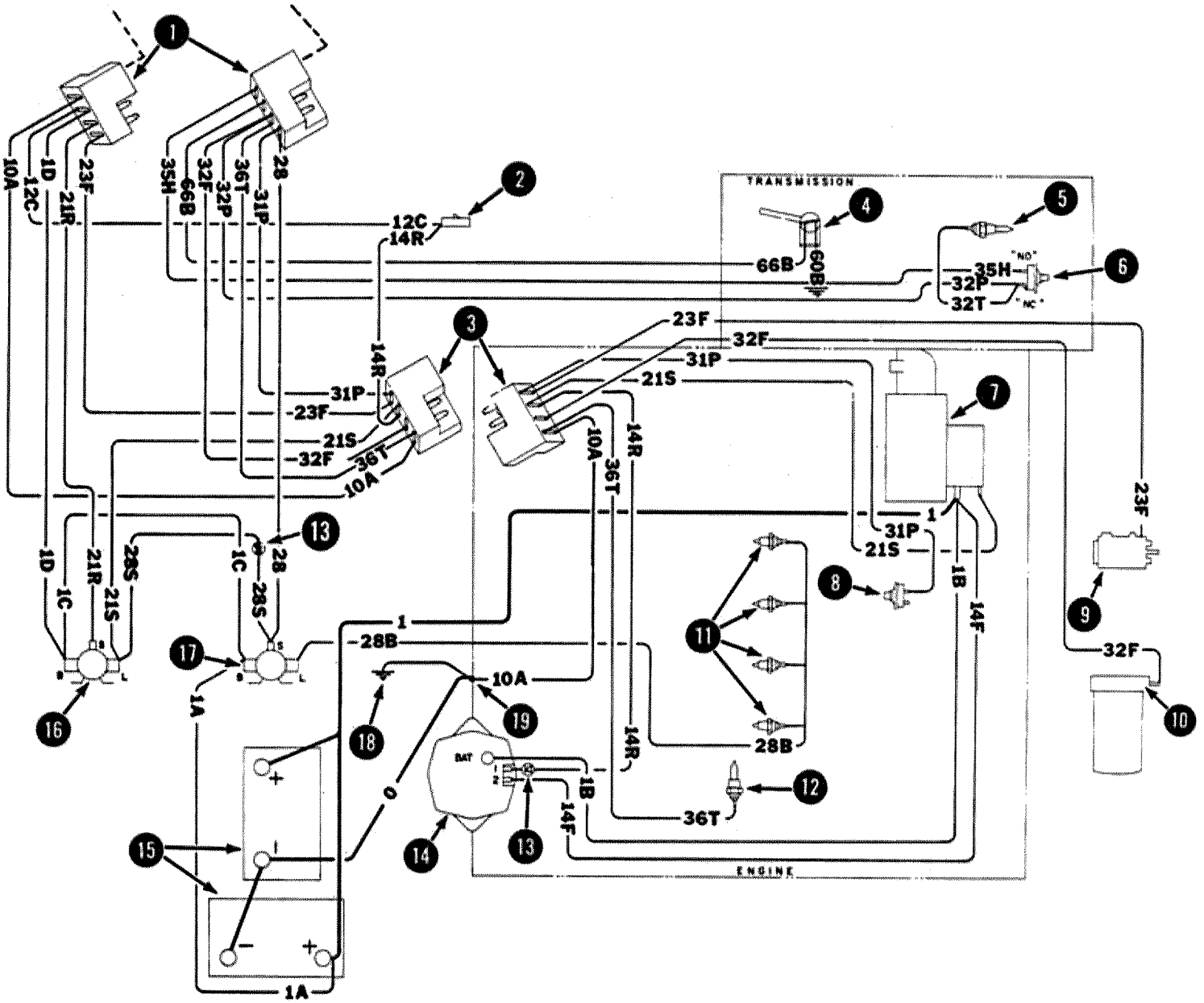
WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	16
10A	Black	12
10B	Black	12
12	Orange	16
12A	Orange	18
12B	Orange	16
12C	Orange	16
12F	Orange	18
12L	Orange	18
12T	Orange	18
19C	Red/White	16
19F	Red/White	16
19H	Red/White	18
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
23F	White/Black	16
26	Lt. Blue	16
28	Lt. Blue/Black	16
30	Black	16
30F	Black	16
30G	Black	16
30T	Black	16
31P	Yellow/Green	18
32PT	Yellow	18
35H	Yellow/Brown	18
36	Purple	16
36T	Purple/White	18
40FL	Black	16
40FR	Black	16
40R	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/White	16
46	Brown	16
46L	Brown	16
46R	Brown	16
49F	Gray	16
49T	Gray	16
49V	Gray	16
60W	Black	16
63	Orange/Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Fuel Sender
4. Back-Up Alarm (Opt.)
5. Rear Lamp
6. Tail Lamp
7. Left Flasher Lamp (Opt.)
8. Left Front Lamp
9. Wiper (Opt.)
10. Flasher (Opt.)
11. Right Front Lamp
12. Right Flasher Lamp (Opt.)
13. Engine Temperature Gauge
14. Fuel Gauge
15. Light Switch
16. Wiper Switch (Opt.)
17. Trans. Warning Light
18. Engine Warning Light
19. Fuse - Ignition
20. Fuse - Accessory
21. Voltmeter
22. Ignition Switch
23. Hourmeter

- ● Tee splice
- ○ Butt splice



ENGINE HARNESS

ENGINE HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	8
1B	Red	12
1C	Red	12
1D	Red	12
10A	Black	12
12C	White/Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
21R	White	16
21S	White/Green	12
23F	White/Black	16
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	8
28S	Lt. Blue/Yellow	16
31P	Yellow/Lt. Green	16
32F	Yellow/Dk. Blue	16
32PT	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36T	Purple/White	16
60B	Black	16
66	Orange/Green	16

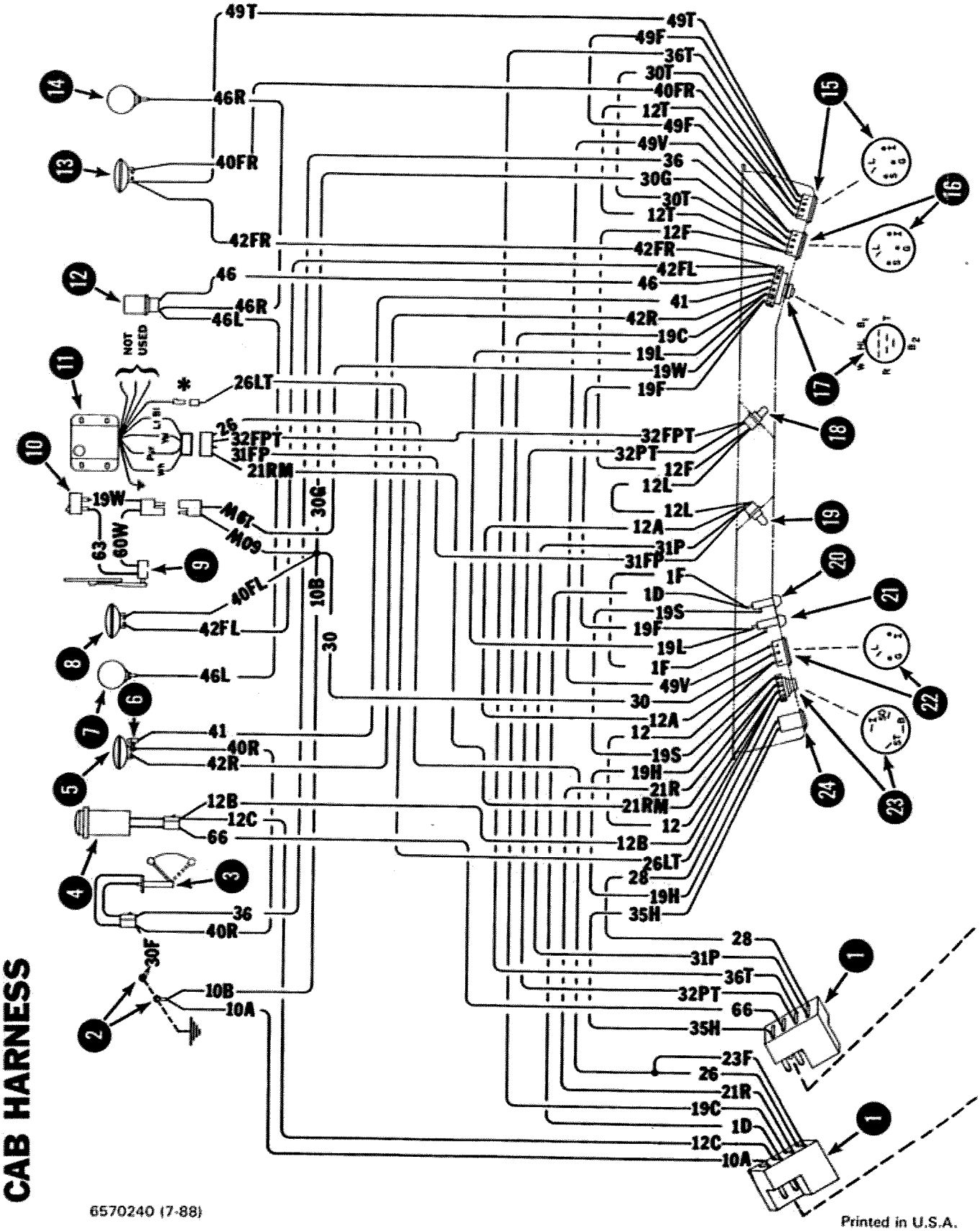
PARTS LEGEND

1. Harness Connectors
2. Unfused & Live Accessories
3. Engine Connector
4. Back-Up Alarm Switch (Opt.)
5. Trans. Oil Temperature Switch
6. Trans. Charge Pressure Switch
7. Starter
8. Engine Oil Pressure Switch
9. Fuel Shut-Off Solenoid (Internal)
10. Hydraulic Fluid Filter Pressure Switch
11. Glow Plugs
12. Engine Coolant Temp. Sender
13. Diode
14. Alternator
15. Batteries
16. Pre-Heat Relay
17. Start Relay
18. Frame Ground
19. Engine Ground

WIRING DIAGRAM (P/N 6570240)

843 (S/N 20001 Thru 23999)

(Printed July 1988)



CAB HARNESS

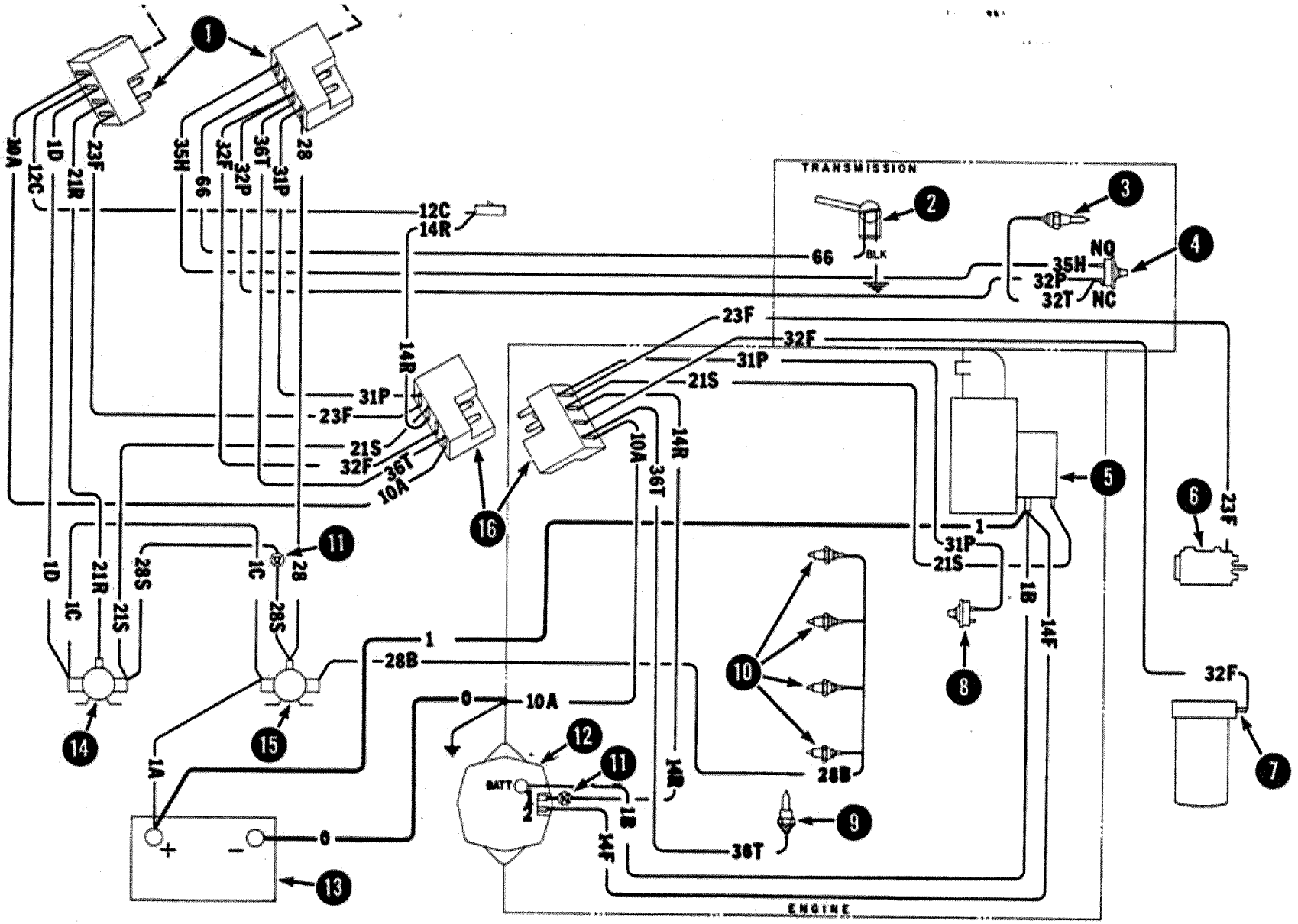
WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	16
10A	Black	12
10B	Black	12
12	Orange	16
12A	Orange	18
12B	Orange	12
12C	Orange	16
12F	Orange	18
12L	Orange	18
12T	Orange	18
19C	Red/White	16
19F	Red/White	16
19H	Red/White	18
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26	Lt. Blue	16
28	Lt. Blue/Black	16
30	Black	16
30F	Black	16
30G	Black	16
30T	Black	16
31FP	Yellow	16
31P	Yellow/Green	18
32FPT	Yellow	18
32PT	Yellow	18
35H	Yellow/Brown	18
36	Purple	16
36T	Purple/White	18
40FL	Black	16
40FR	Black	16
40R	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/White	16
46	Brown	16
46L	Brown	16
46R	Brown	16
49F	Gray	16
49T	Gray	16
49V	Gray	16
60W	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Fuel Sender
4. Back-Up Alarm (Opt.)
5. Rear Lamp
6. Tail Lamp
7. Left Flasher Lamp (Opt.)
8. Left Front Lamp
9. Wiper (Opt.)
10. Wiper Switch (Opt.)
11. Shut Down Module (Opt.)
12. Flasher (Opt.)
13. Right Front Lamp
14. Right Flasher Lamp (Opt.)
15. Engine Temperature Gauge
16. Fuel Gauge
17. Light Switch
18. Trans. Warning Light
19. Engine Warning Light
20. Fuse - Ignition
21. Fuse - Accessory
22. Voltmeter
23. Ignition Switch
24. Hourmeter

- ● Tee splice
- ○ Butt splice



ENGINE HARNESS

ENGINE HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	12
1B	Red	10
1C	Red	12
1D	Red	12
10A	Black	12
12C	White/Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
21R	White	16
21S	White/Green	12
23F	White/Black	16
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	8
28S	Lt. Blue/Yellow	16
31P	Yellow/Lt. Green	16
32F	Yellow/Dk. Blue	16
32P	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36T	Purple/White	16
60B	Black	16
66	Orange/Green	16

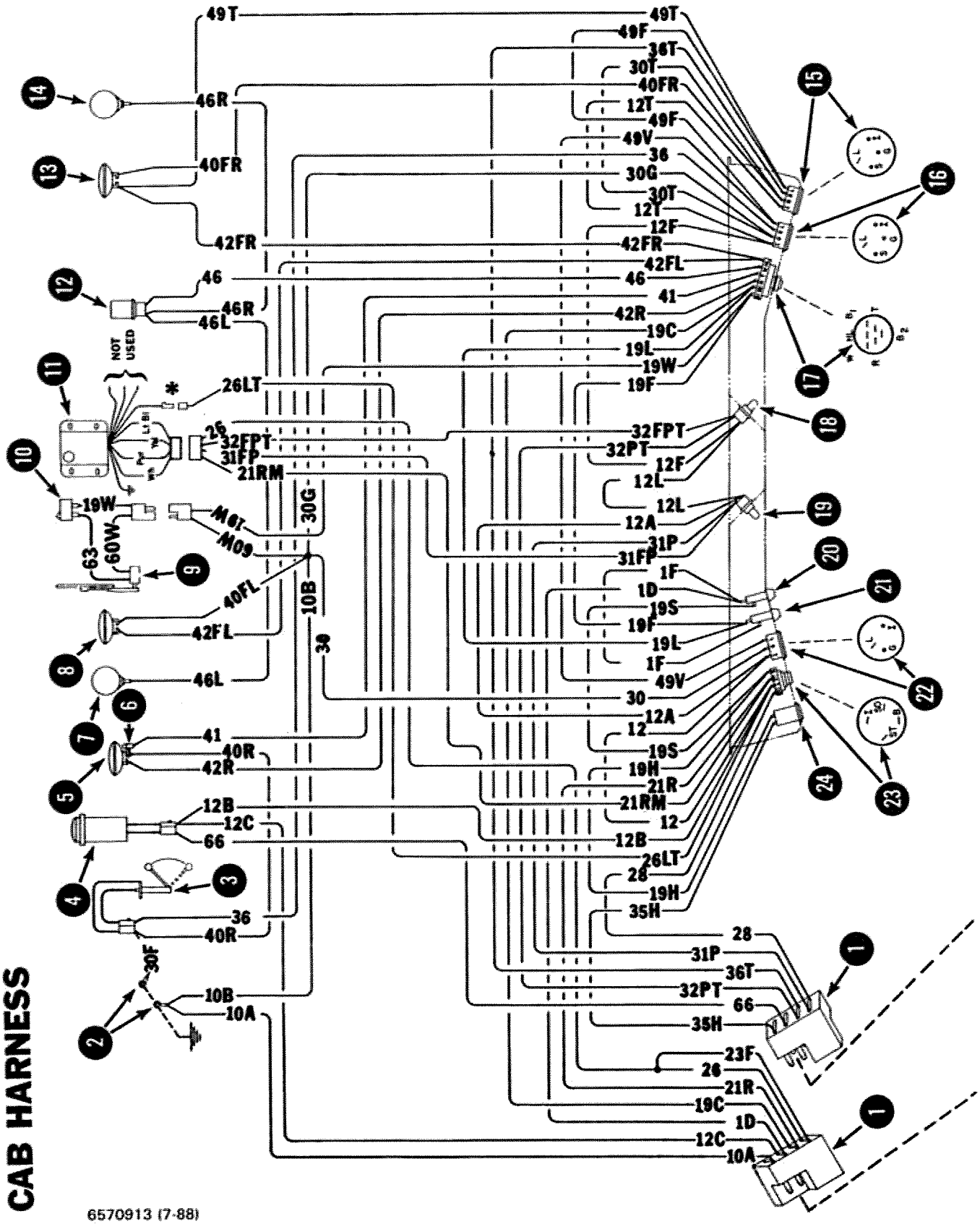
PARTS LEGEND

1. Harness Connectors
2. Back-Up Alarm Switch (Opt.)
3. Trans. Fluid Temp. Switch
4. Trans. Charge Pressure Switch
5. Starter
6. Injection Pump Shut-Off
7. Hydrostatic Filter Switch
8. Engine Oil Press. Switch
9. Engine Coolant Temp. Sender
10. Engine Glow Plugs
11. Diode
12. Alternator
13. Battery
14. Start Relay
15. Pre-Heat Relay
16. Harness Connectors

WIRING DIAGRAM (P/N 6570913)

843 (S/N 24001 Thru 25999)

(Printed July 1988)



6570913 (7-88)

CAB HARNESS

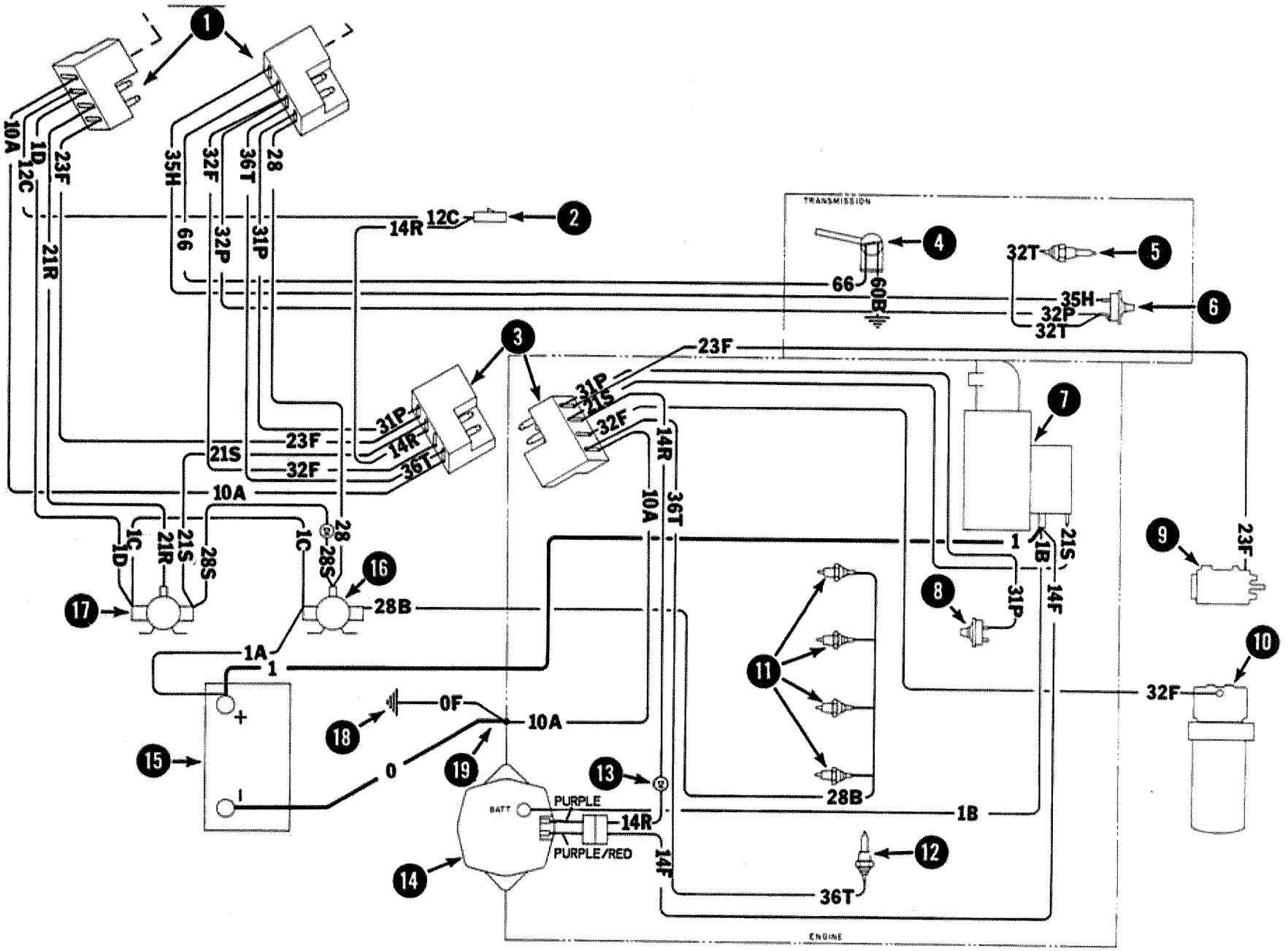
WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	16
10A	Black	12
10B	Black	12
12	Orange	16
12A	Orange	18
12B	Orange	12
12C	Orange	16
12F	Orange	18
12L	Orange	18
12T	Orange	18
19C	Red/White	16
19F	Red/White	16
19H	Red/White	18
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26	Lt. Blue	16
28	Lt. Blue/Black	16
30	Black	16
30F	Black	16
30G	Black	16
30T	Black	16
31FP	Yellow	16
31P	Yellow/Green	18
32FPT	Yellow	18
32PT	Yellow	18
35H	Yellow/Brown	18
36	Purple	16
36T	Purple/White	18
40FL	Black	16
40FR	Black	16
40R	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/White	16
46	Brown	16
46L	Brown	16
46R	Brown	16
49F	Gray	16
49T	Gray	16
49V	Gray	16
60W	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Fuel Sender
4. Back-Up Alarm (Opt.)
5. Rear Lamp
6. Tail Lamp
7. Left Flasher Lamp (Opt.)
8. Left Front Lamp
9. Wiper (Opt.)
10. Wiper Switch (Opt.)
11. Shut Down Module (Opt.)
12. Flasher (Opt.)
13. Right Front Lamp
14. Right Flasher Lamp (Opt.)
15. Engine Temperature Gauge
16. Fuel Gauge
17. Light Switch
18. Trans. Warning Light
19. Engine Warning Light
20. Fuse - Ignition
21. Fuse - Accessory
22. Voltmeter
23. Ignition Switch
24. Hourmeter

- ● Tee splice
- ○ Butt splice



ENGINE HARNESS

E-1821

ENGINE HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	8
1B	Red	10
1C	Red	12
1D	Red	12
10A	Black	12
12C	White/Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
21R	White	16
21S	White/Green	12
23F	White/Black	16
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	8
28S	Lt. Blue/Yellow	16
31P	Yellow/Lt. Green	16
32F	Yellow/Dk. Blue	16
32PT	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36T	Purple/White	16
60B	Black	16
66	Orange/Green	16

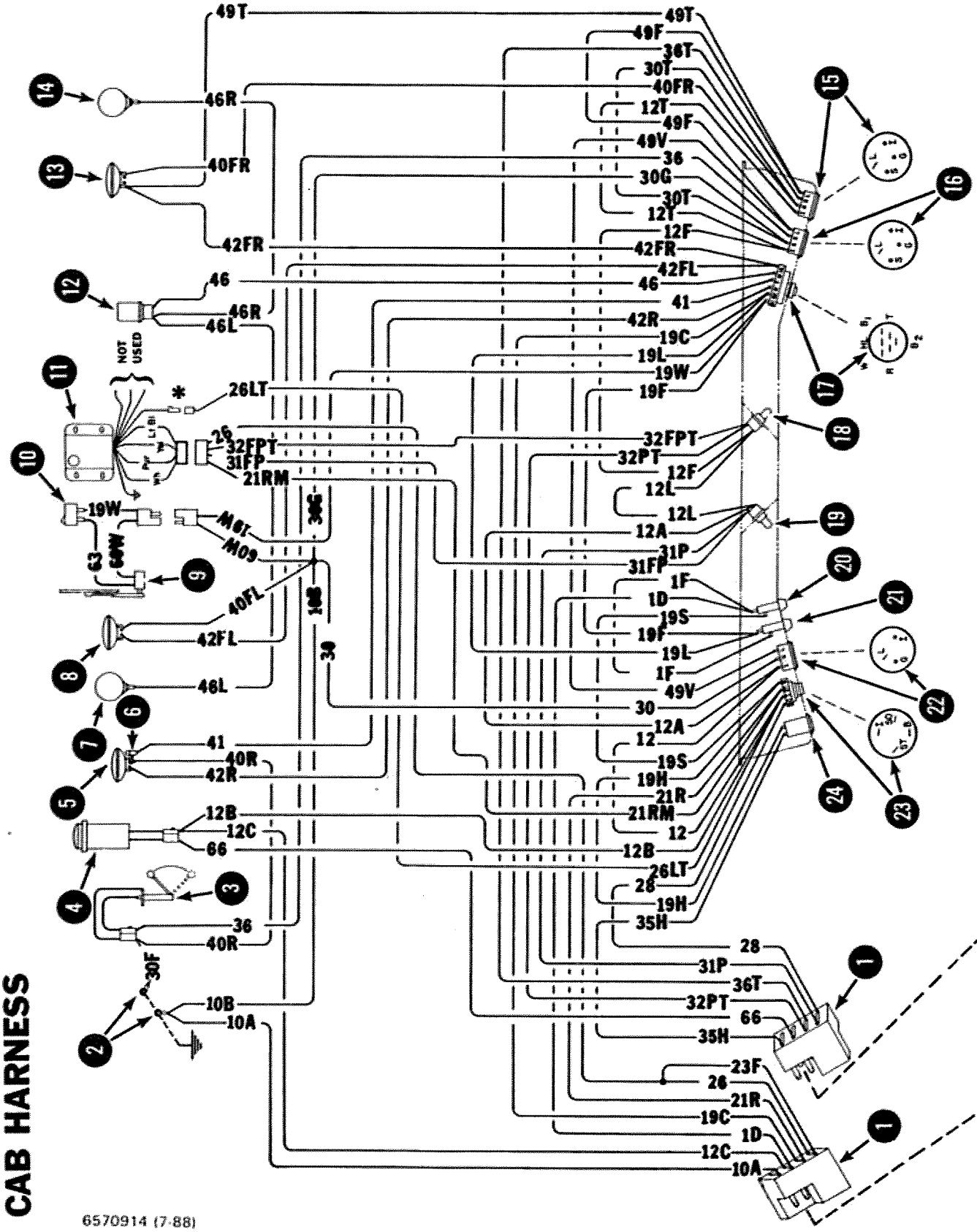
PARTS LEGEND

1. Harness Connectors
2. Unfused & Live Accessories
3. Engine Connector
4. Back-Up Alarm Switch (Opt.)
5. Trans. Oil Temperature Switch
6. Trans. Charge Pressure Switch
7. Starter
8. Engine Oil Pressure Switch
9. Fuel Shut-Off Solenoid (Internal)
10. Hydraulic Fluid Filter Pressure Switch
11. Glow Plugs
12. Engine Coolant Temp. Sender
13. Diode
14. Alternator
15. Battery
16. Pre-Heat Relay
17. Start Relay
18. Frame Ground
19. Engine Ground

WIRING DIAGRAM (P/N 6570914)

843 (S/N 26001 Thru 28134)

(Printed July 1988)



CAB HARNESS

WIRE LEGEND

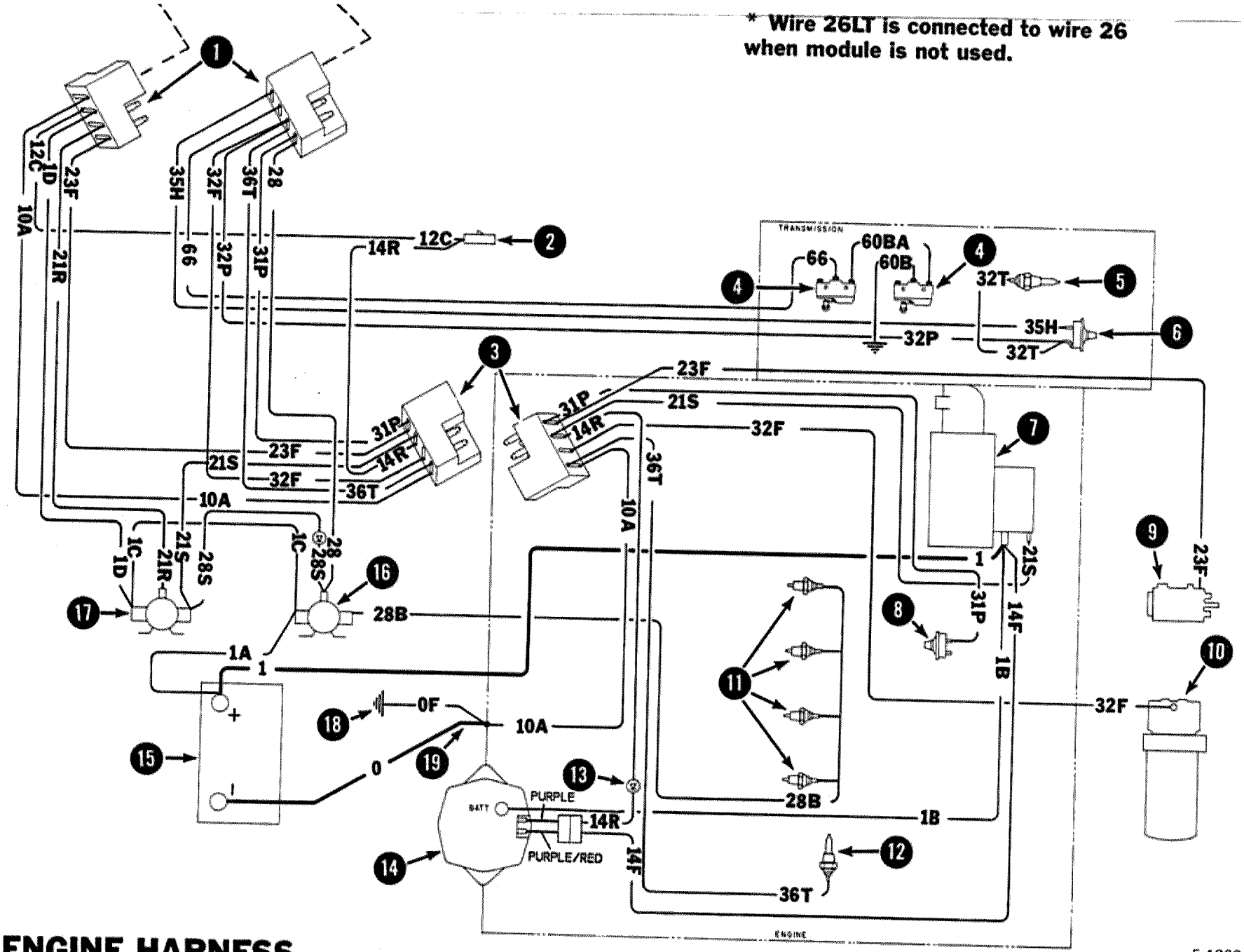
NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	16
10A	Black	12
10B	Black	12
12	Orange	16
12A	Orange	18
12B	Orange	12
12C	Orange	16
12F	Orange	18
12L	Orange	18
12T	Orange	18
19C	Red/White	16
19F	Red/White	16
19H	Red/White	18
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26	Lt. Blue	16
28	Lt. Blue/Black	16
30	Black	16
30F	Black	16
30G	Black	16
30T	Black	16
31FP	Yellow	16
31P	Yellow/Green	18
32FPT	Yellow	18
32PT	Yellow	18
35H	Yellow/Brown	18
36	Purple	16
36T	Purple/White	18
40FL	Black	16
40FR	Black	16
40R	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/White	16
46	Brown	16
46L	Brown	16
46R	Brown	16
49F	Gray	16
49T	Gray	16
49V	Gray	16
60W	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Operator Cab Ground
3. Fuel Sender
4. Back-Up Alarm (Opt.)
5. Rear Lamp
6. Tail Lamp
7. Left Flasher Lamp (Opt.)
8. Left Front Lamp
9. Wiper (Opt.)
10. Wiper Switch (Opt.)
11. Shut Down Module (Opt.)
12. Flasher (Opt.)
13. Right Front Lamp
14. Right Flasher Lamp (Opt.)
15. Engine Temperature Gauge
16. Fuel Gauge
17. Light Switch
18. Trans. Warning Light
19. Engine Warning Light
20. Fuse - Ignition
21. Fuse - Accessory
22. Voltmeter
23. Ignition Switch
24. Hourmeter

- ● Tee splice
- ○ Butt splice

* Wire 26LT is connected to wire 26 when module is not used.



ENGINE HARNESS

E-1820

ENGINE HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	8
1B	Red	10
1C	Red	12
1D	Red	12
10A	Black	12
12C	White/Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
21R	White	16
21S	White/Green	12
23F	White/Black	16
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	8
28S	Lt. Blue/Yellow	16
31P	Yellow/Lt. Green	16
32F	Yellow/Dk. Blue	16
32PT	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36T	Purple/White	16
60BA	Black	16
60B	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Unfused & Live Accessories
3. Engine Connector
4. Back-Up Alarm Switchs (Opt.)
5. Trans. Oil Temperature Switch
6. Trans. Charge Pressure Switch
7. Starter
8. Engine Oil Pressure Switch
9. Fuel Shut-Off Solenoid (Internal)
10. Hydraulic Fluid Filter Pressure Switch
11. Glow Plugs
12. Engine Coolant Temp. Sender
13. Diode
14. Alternator
15. Battery
16. Pre-Heat Relay
17. Start Relay
18. Frame Ground
19. Engine Ground

CAB HARNESS

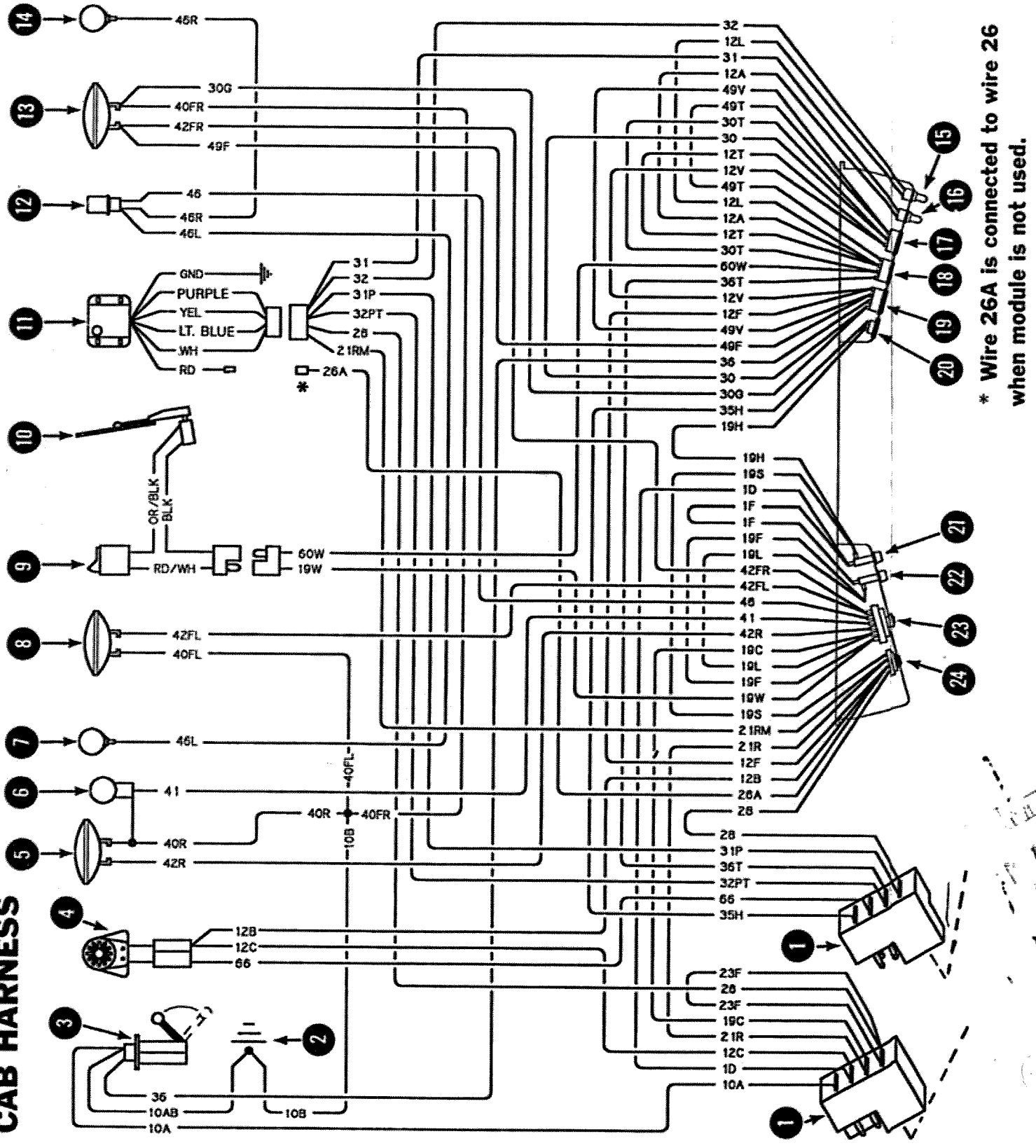
WIRE LEGEND

PARTS LEGEND

WIRING DIAGRAM (P/N 6570915)

843 (S/N 28135 & Above) & 843B

(Printed September 1990)



6570915

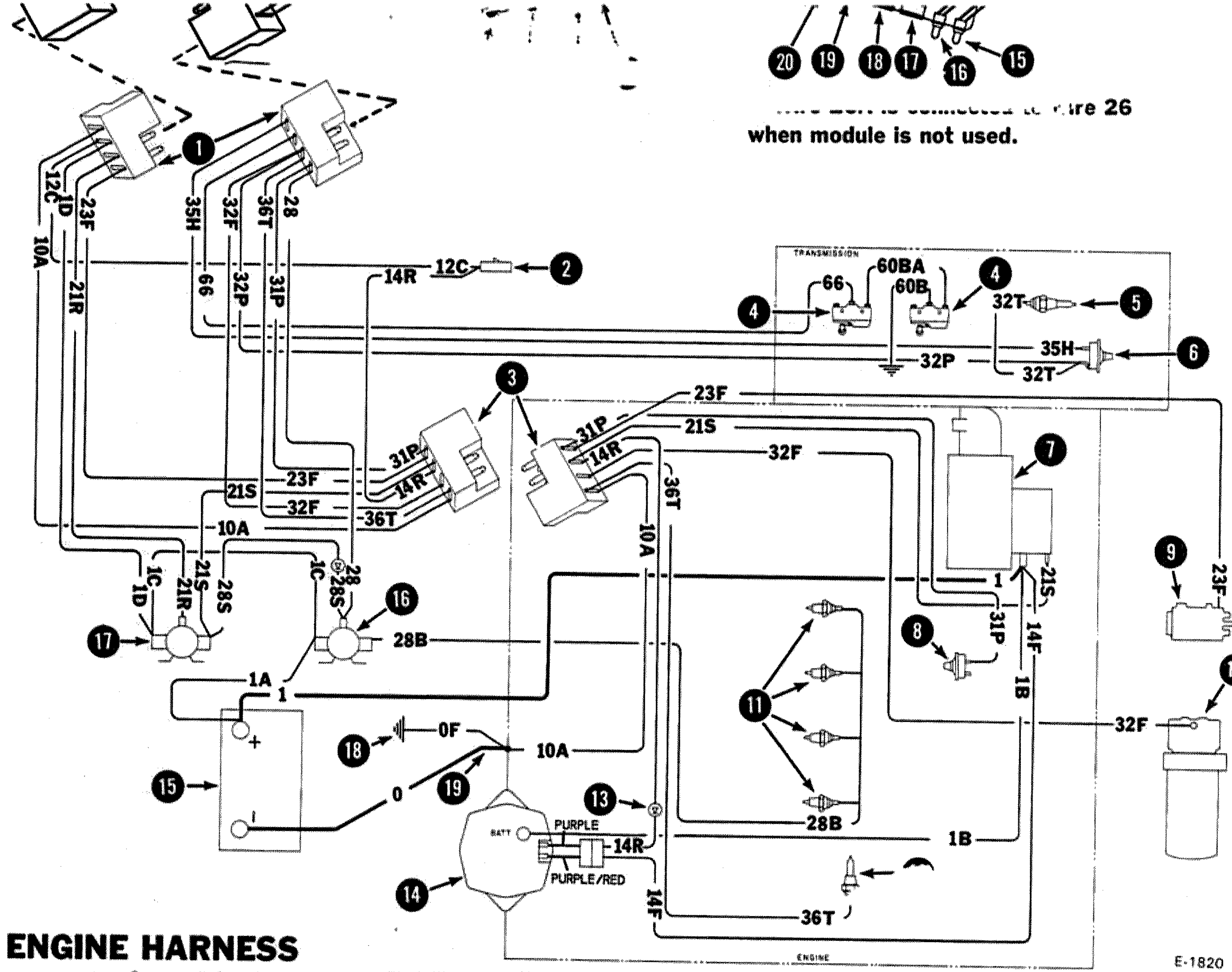
CAB HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
1D	Red	12
1F	Red	16
10A	Black	12
10B	Black	14
10AB	Black	12
12A	Orange	18
12B	Orange	16
12C	Orange	16
12F	Orange	16
12L	Orange	18
12T	Orange	18
12V	Orange	18
19C	Red/White	16
19F	Red/White	16
19H	Red/White	18
19L	Red/White	16
19S	Red/White	16
19W	Red/White	16
21R	White	16
21RM	White	16
23F	White/Black	16
26	Lt. Blue	16
26A	Lt. Blue	16
28	Lt. Blue/Black	16
30	Black	16
30G	Black	16
30T	Black	16
31	Yellow	18
31P	Yellow/Green	18
32	Yellow	18
32PT	Yellow	18
35H	Yellow/Brown	18
36	Purple	16
36T	Purple/White	18
40R	Black	16
40FL	Black	16
40FR	Black	16
41	Pink	16
42FL	Dk. Blue	16
42FR	Dk. Blue	16
42R	Dk. Blue/White	16
46	Brown	16
46L	Brown	16
46R	Brown	16
49F	Gray	18
49T	Gray	18
49V	Gray	18
60W	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Ground
3. Fuel Sender
4. Back-Up Alarm (Opt. 843B Only)
5. Rear Light (Opt. 843B Only)
6. Tail Light (Opt. 843B Only)
7. Left Flasher Light (Opt.)
8. Left Front Light (Opt. 843B Only)
9. Wiper Switch (Opt.)
10. Wiper (Opt.)
11. Shut Down Module (Opt.)
12. Flasher (Opt.)
13. Right Front Light (Opt. 843B Only)
14. Right Flasher Light (Opt.)
15. Trans. Warning Light
16. Engine Warning Light
17. Voltmeter
18. Temperature Gauge
19. Fuel Gauge
20. Hourmeter
21. Fuse (Ignition)
22. Fuse (Accessory)
23. Light Switch (Opt. 843 Only)
24. Ignition Switch



ENGINE HARNESS

ENGINE HARNESS

WIRE LEGEND

NO.'s	COLOR	GAUGE
0	Black	Cable
1	Red	Cable
1A	Red	8
1B	Red	10
1C	Red	12
1D	Red	12
10A	Black	12
12C	White/Orange	16
14F	Lt. Green	16
14R	Lt. Green/White	16
21R	White	16
21S	White/Green	12
23F	White/Black	16
28	Lt. Blue/Black	16
28B	Lt. Blue/Orange	8
28S	Lt. Blue/Yellow	16
31P	Yellow/Lt. Green	16
32F	Yellow/Dk. Blue	16
32PT	Yellow	16
32T	Yellow/Black	16
35H	Yellow/Brown	16
36T	Purple/White	16
60BA	Black	16
60B	Black	16
66	Orange/Green	16

PARTS LEGEND

1. Harness Connectors
2. Unfused & Live Accessories
3. Engine Connector
4. Back-Up Alarm Switch (Opt.)
5. Trans. Fluid Temp. Switch
6. Trans. Charge Pressure Switch
7. Starter
8. Engine Oil Pressure Switch
9. Fuel Shut-Off Solenoid (Internal)
10. Hydraulic Filter Pressure Switch
11. Glow Plugs
12. Engine Coolant Temp. Sender
13. Diode
14. Alternator
15. Battery
16. Pre-Heat Relay
17. Start Relay
18. Frame Ground
19. Engine Ground

6 ELECTRICAL SYSTEM

ELECTRICAL SYSTEM INFORMATION

Description

The loader has a 12 volt, negative ground electrical system. There are two main circuits.

1. The charging circuit has an alternator (with built-in regulator), a voltmeter and a battery.

2. The starting circuit has a starter motor, solenoids and other components for starting the engine.

The loader also has front and rear lights. Optional windshield wiper, horn and back-up alarm.

The electrical system is protected by two fuses installed in the instrument panel. Fuses protect the electrical system from an overload.

⚠ WARNING

Instructions are necessary before operating or servicing machine. Read Operator's Manual, Handbook and signs (decals) on machine. Follow warnings and instructions in the manuals when making repairs, adjustments or servicing. Check for correct function after adjustments, repairs or service. Failure to follow instructions can cause injury or death.

W-2003-1285

TROUBLESHOOTING

The following troubleshooting chart is provided as an assistance in locating and correcting problems which are most common. Many of the recommended procedures must be done by authorized Bobcat Service Personnel only.

PROBLEM	CAUSE
Battery does not charge.	1, 2, 3, 4, 5
Alternator will not charge.	1, 2, 5
Starter will not turn the engine.	2, 3, 4, 6, 7, 8, 9

KEY TO CORRECT THE CAUSE

1. Alternator belt is loose or damaged.
2. Battery connections are dirty or loose.
3. Battery is damaged.
4. The ground connection is not making a good contact.
5. The alternator is damaged.
6. The engine is locked.
7. The starter is damaged.
8. The wiring or the solenoid is damaged.
9. Check the fuses.

BATTERY

Checking the Battery

The tool listed will be needed to do the following procedure:

MEL-10004 — Battery Tester

To make a safe and complete check of the battery see the Clark Battery Manual (P/N 6566047).

The Battery Manual has all the information and specifications needed for checking and servicing the battery. Replace the battery as needed.

⚠ WARNING

Batteries contain acid which burns eyes or skin on contact. Wear goggles and protective clothing and rubber gloves to keep acid off body.

In case of acid contact, wash immediately with water for several minutes and get medical attention.

W-2065-1285

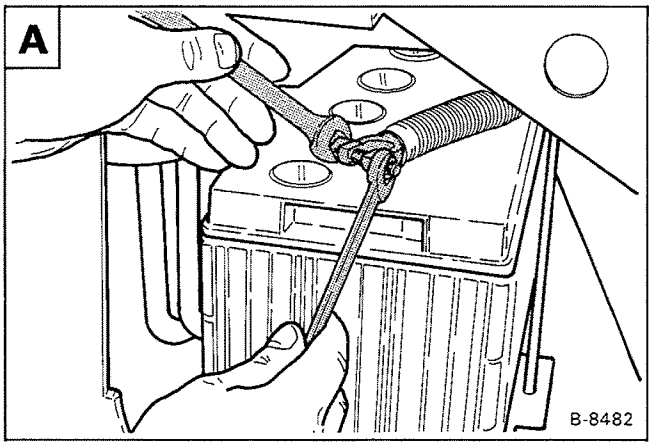
DO NOT remove the vent caps from the battery while charging the battery. The battery has vent caps which will decrease the possibility of the battery being exploded by an external spark.

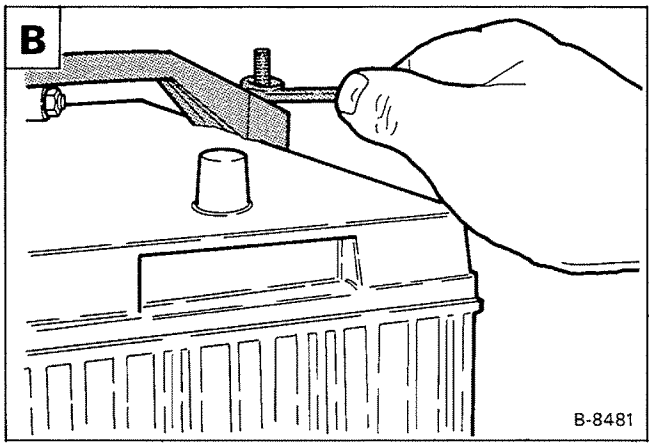
Removal and Installation

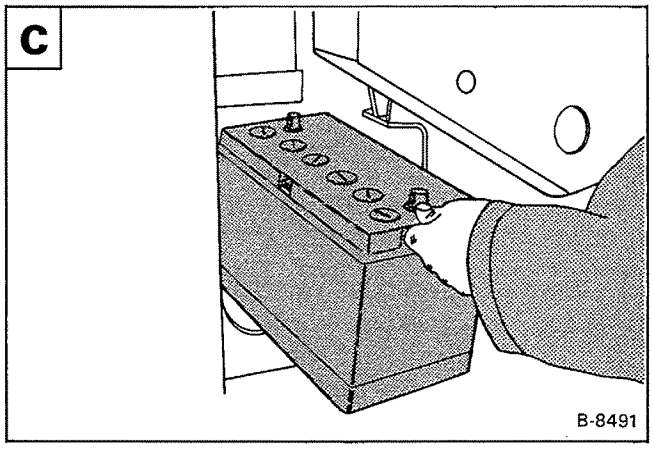
Disconnect the battery cables. Always remove the negative (—) cable first to prevent sparks [A].

Remove the nuts and bolts from the holddown clamp and remove the holddown clamp [B].

Remove the battery from the loader [C].







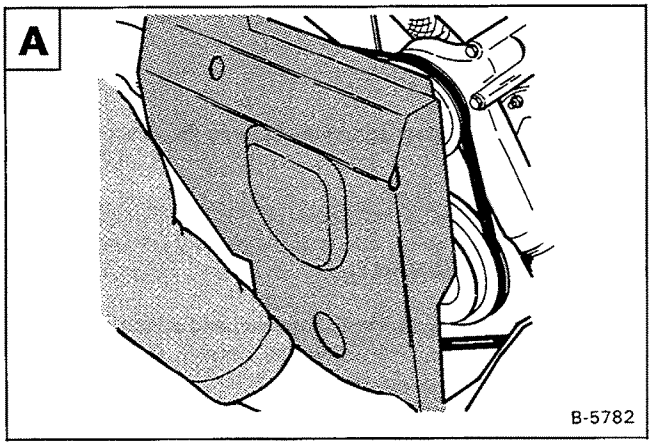
ALTERNATOR

Alternator Belt Adjustment

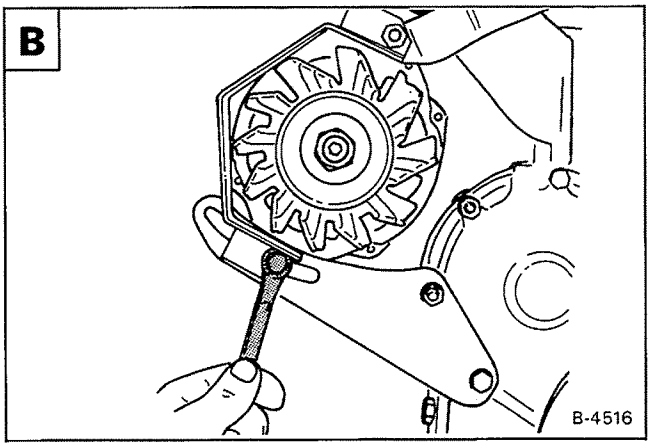
Open the rear door.

Remove the bolts from the belt shield.

Remove the belt shield from the engine [A].



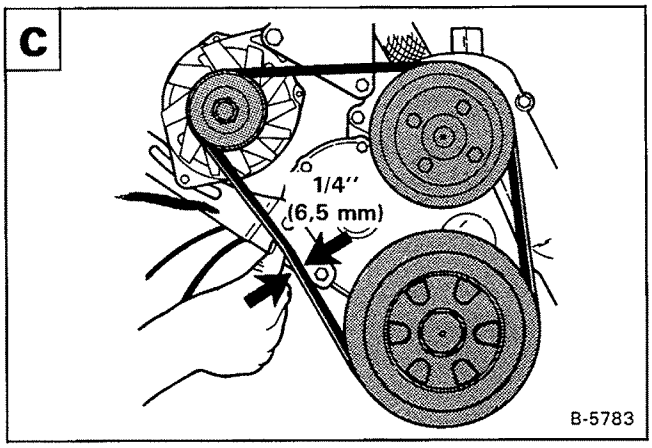
Loosen the adjustment bolt [B].



Move the alternator to set the belt tension at 1/4" (6,5 mm) deflection with 5 lbs. pressure [C].

Tighten the adjustment bolt [B].

Install the belt shield.



ALTERNATOR (Cont'd)

Checking the Alternator Wire Harness

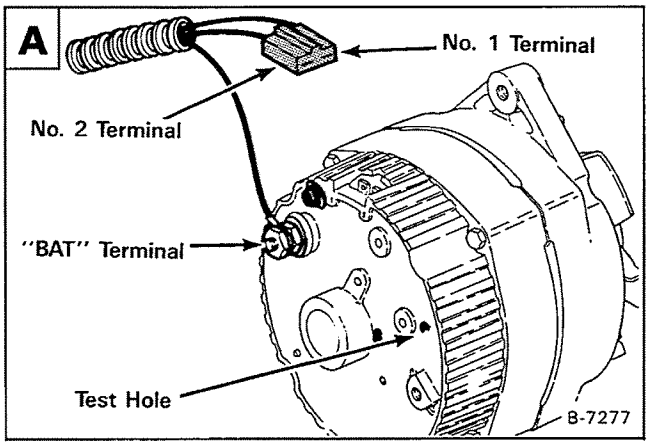
Turn the key switch to the "ON" position and make the checks as follows [A].

Connect a voltmeter between ground and No. 1 terminal.

Connect a voltmeter between ground and No. 2 terminal.

Connect a voltmeter between ground and "BAT" terminal.

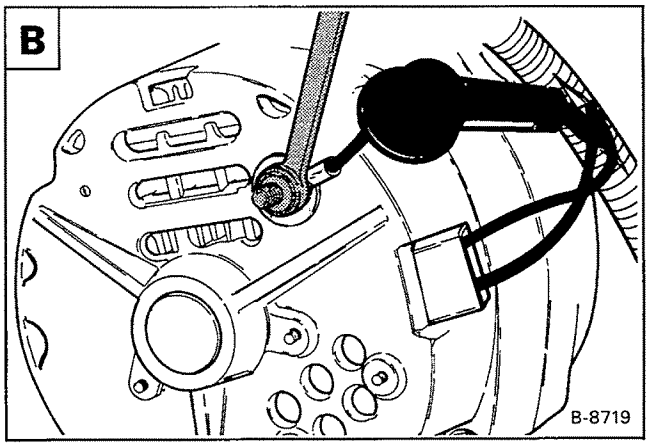
If any of the tests show zero voltage, the wiring harness has a defect. Repair the wiring harness as needed.



Checking Alternator Output

Lift and block the loader (See Page 1—2 for the correct procedure).

Disconnect the "BAT" terminal at the alternator [B].



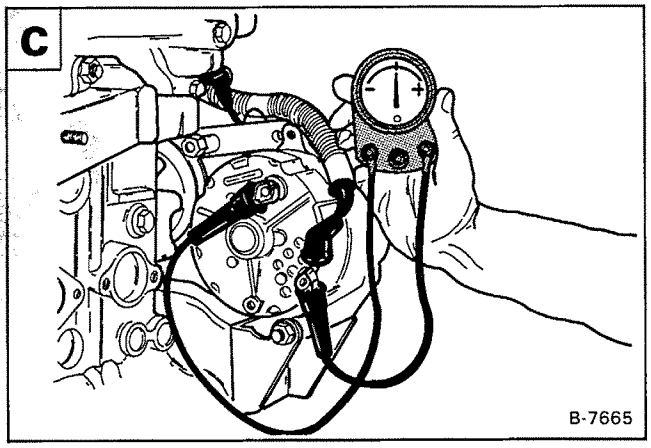
Connect the "BAT" wire to one side of the ammeter. Connect the other side to the "BAT" terminal of the alternator [C].

Disconnect the fuel shut-off wire at the injection pump. Turn the engine, with the starter for 30 seconds to lower the charge in the battery.

Connect the fuel shut-off wire.

Start the engine and run at full RPM.

The ammeter reading must be within 10% of rated amperage (37 amps. @ 2100 RPM) [C].



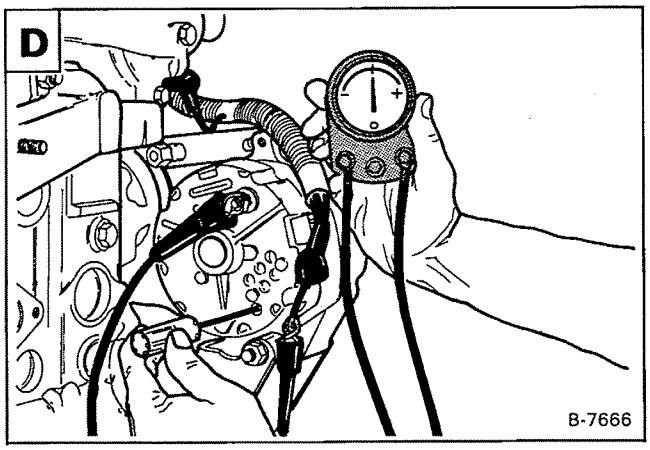
Checking Alternator Regulator

Use the same procedure as above for "Checking Alternator Output" except for the following:

Put a small screwdriver in the test hole [D].

The ammeter reading must be within 10% of rated amperage (37 amps. @ 2100 RPM).

If the reading is less than 10% of rated amperage, check the diode trio, rectifier, stator or rotor.



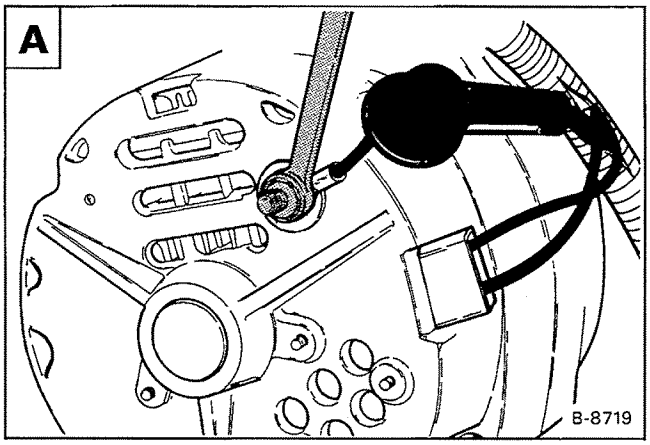
ALTERNATOR (Cont'd)

Removal and Installation

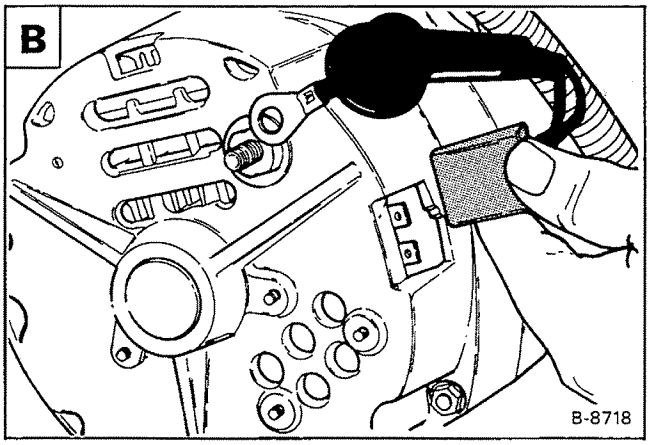
Remove the belt shield at the engine.

Disconnect the negative (—) cable at the battery.

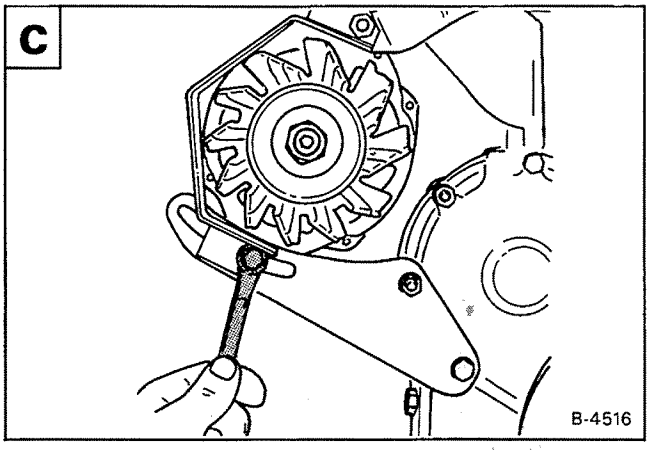
Disconnect the wire at the "BAT" terminal [A].



Disconnect the No. 1 & 2 terminals [B].

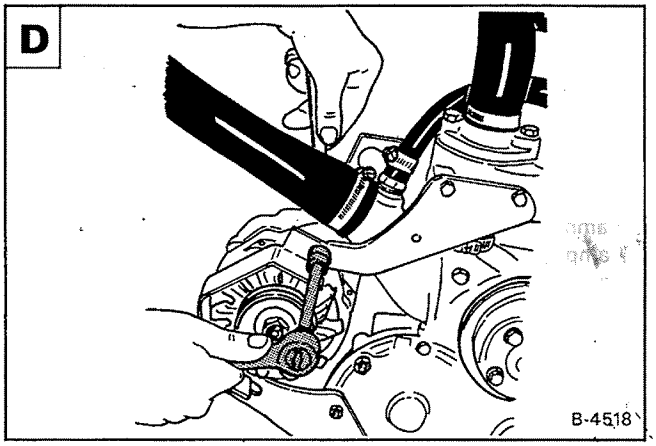


Remove the adjustment bolt [C].



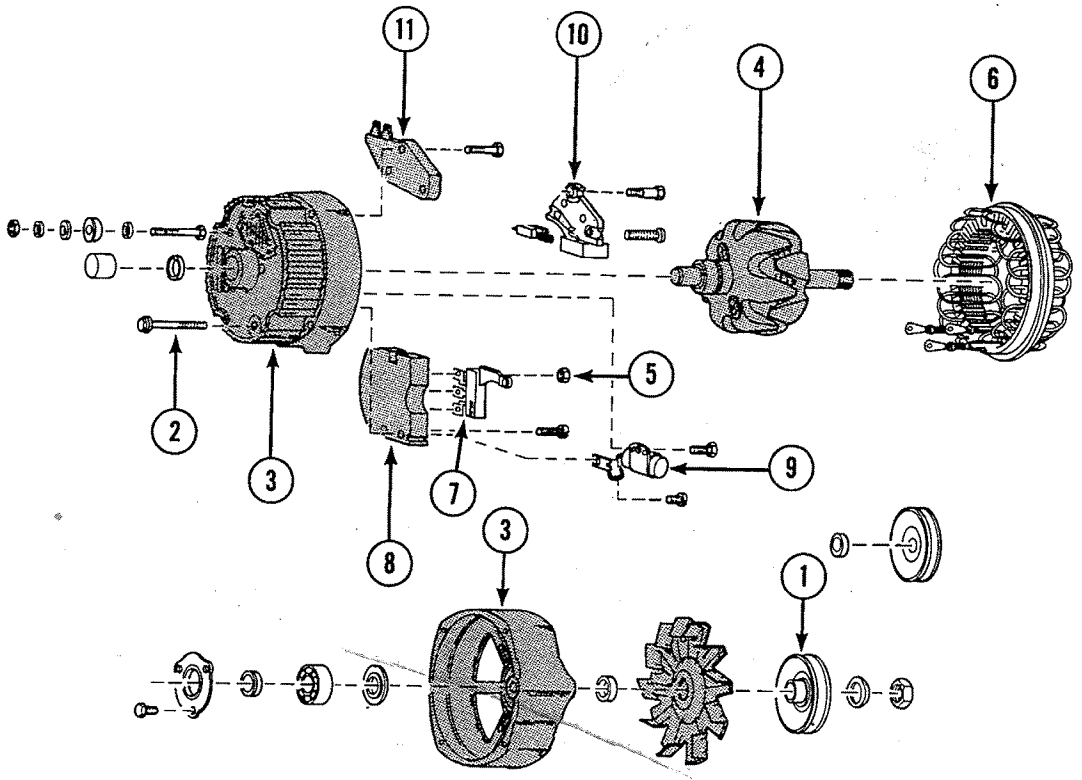
Remove the mounting bolt [D].

Remove the alternator from the engine.



A

1. Pulley
2. Bolts
3. Case Halves
4. Rotor
5. Nuts
6. Stator
7. Diode Trio
8. Rectifier
9. Capacitator
10. Brush Holder
11. Regulator



C-1802

ALTERNATOR (Cont'd)

Disassembly and Assembly

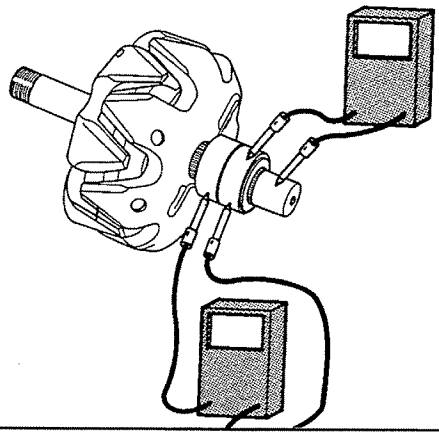
Disassemble the alternator as shown [A].

Connect an ohmmeter as follows to check the rotor [B].

Between one slip ring and the shaft. Check the other slip ring. There must be maximum resistance.

Between both slip rings. There must be 2.4 to 3.0 ohms. resistance.

B



B-8068

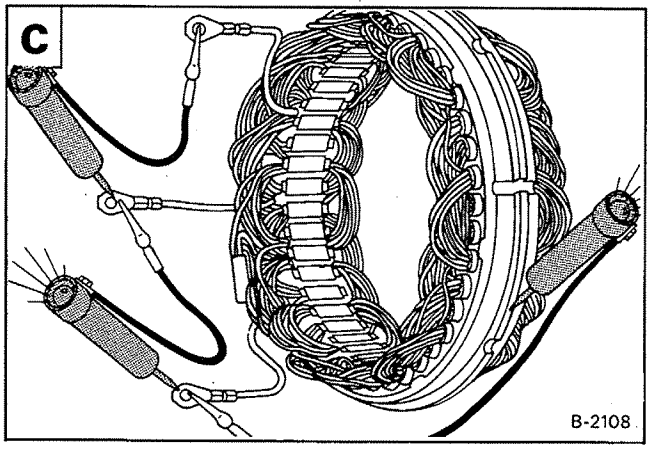
Connect a battery powered test light as follows to check the stator [C].

Between the center wire and an outside wire. Light must come "ON".

Between center wire and the other outside wire. Light must come "ON".

Between one of the wires and frame. Light must NOT come "ON".

C



B-2108

ALTERNATOR (Cont'd)

Connect a D.C. test light as follows to check the diode trio [A].

IMPORTANT

Do not use voltage which is more than circuit voltage to check the diode trio or the rectifier on the alternator.

I-2026-0284

Between a single connection and one of the three connections. Connect the tester in the opposite direction. The light must come "ON" in one direction, but not in the other direction.

Check each diode with the same procedure.

Connect a test light as follows to check the rectifier [B].

Between one connection and insulated heat sink. Connect the test light in opposite direction. The light must come "ON" in one direction, but not in the other direction.

Between one connection and the grounded heat sink. Connect test light in opposite direction. The light must come "ON" in one direction, but not in the other direction.

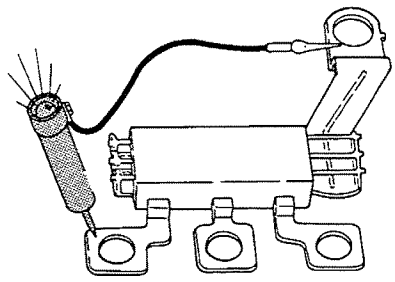
Assembly: Reverse the order of disassembly.

Also if regulator was removed, install new insulated washers and spacers [C].

When installing the brushes, put a piece of straight wire through the housing to hold the brushes in the up position [D].

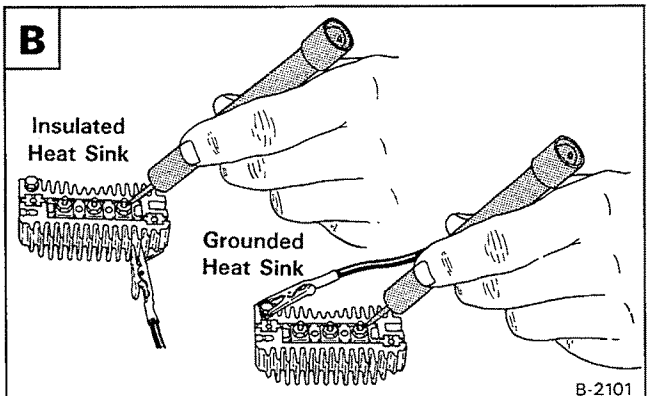
Then install the rotor, when in position pull the wire out to seat the brushes.

A



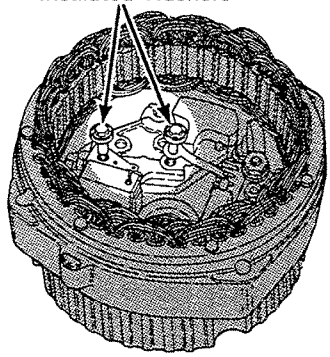
A-2382

B



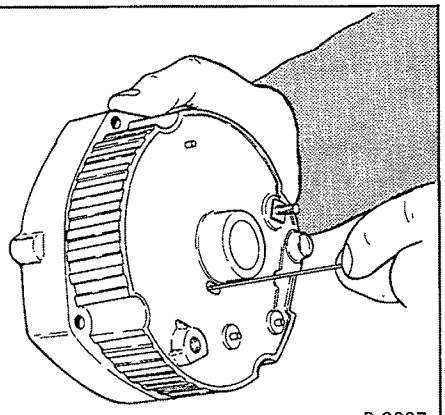
B-2101
B-2102

C



B-2128

D



B-2097

MELROE ALTERNATOR

Checking the Alternator Output

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W-2017-0286

Lift and block the loader (Refer to Page 1—2 for the correct procedure).

Disconnect the negative (—) cable from the battery.

Remove the belt shield.

Connect the orange lead (Item 1) from the alternator output terminal to the negative (—) side of the ammeter. Connect the positive (+) side of the ammeter to the output terminal on the alternator (Item 2) [A].

Disconnect the fuel shut-off wire.

Connect the negative (—) cable to the battery.

Turn on the lights and crank the engine for 30 seconds to run the battery down.

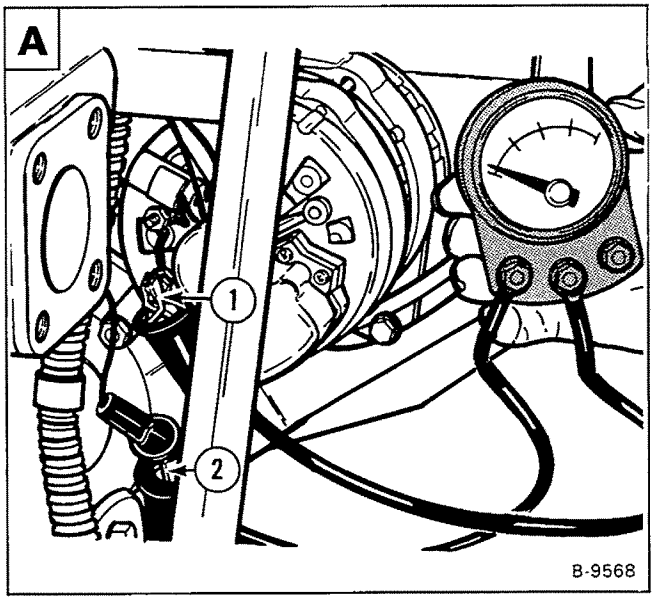
Connect the fuel shut-off wire.

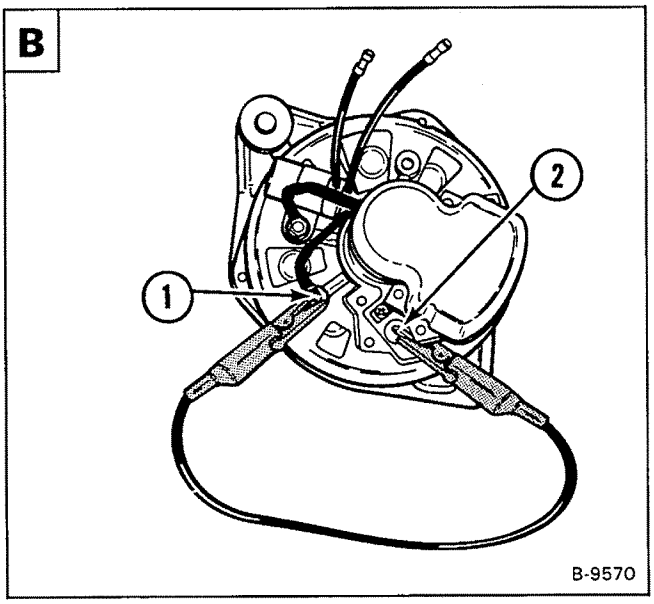
Start the engine and run at 2600 R.P.M.

The ammeter reading should be between 45 & 55 amps. @ 2600 RPM.

If the reading is low, disconnect the battery and connect a jumper wire from the alternator output terminal (Item 1) to the regulator terminal (Item 2).

Connect the battery cable, start the engine and check the ammeter. If the reading is within the rated amperage (45-55 amps. @ 2600 RPM) replace the diode trio [B].





Checking the Alternator Regulator

Connect the positive (+) voltmeter lead to the positive (+) battery terminal and connect the negative (—) voltmeter lead to the negative (—) battery terminal [A].

⚠ WARNING

Put jackstands under the front axles and rear corners of the frame before running the engine for service. Failure to use jackstands can allow the machine to fall or move and cause injury or death.

W-2017-0286

⚠ WARNING

When an engine is running in an enclosed area, fresh air must be added to avoid concentration of exhaust fumes. If the engine is stationary, vent the exhaust outside. Exhaust fumes contain odorless, invisible gases which can kill without warning.

W-2050-1285

Start and run the engine at 1500 - 2000 R.P.M. The voltmeter should be between 13.9 - 14.7 volts [A].

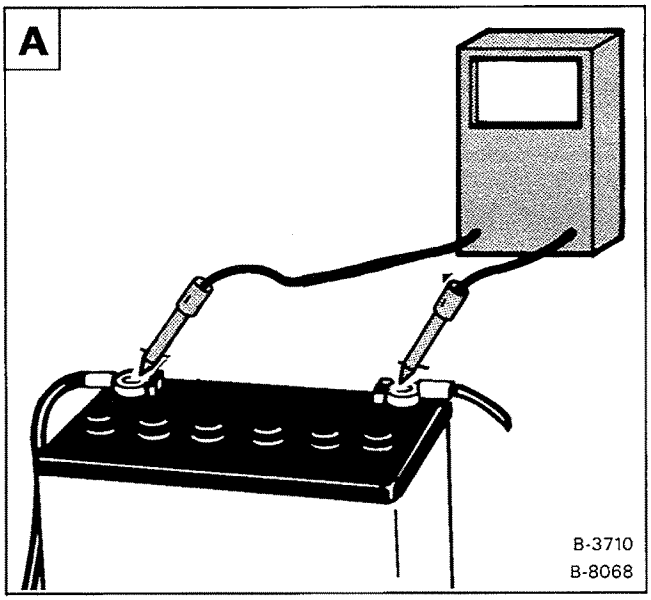
If the reading is low, stop the engine and disconnect the battery.

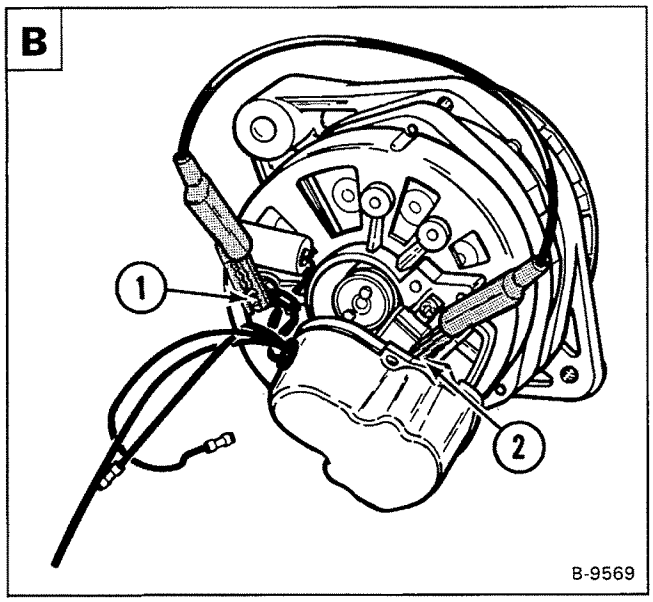
Remove the screws and pull the regulator cover away from the alternator. Connect the jumper wire from the ground stud (Item 1) to the brush terminal (Item 2) (the tan wire) [B].

Connect the battery and start the engine. Run at 1500 RPM. DO NOT allow the meter to exceed 16 volts.

If the reading is 14.5 or above, replace the regulator.

If the reading is 14.5 or below, repair or replace the alternator.



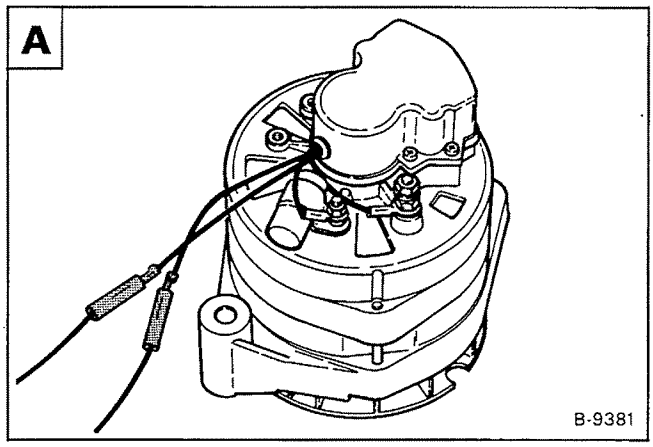


MELROE ALTERNATOR (Cont'd)

Removal and Installation

Disconnect the negative cable from battery.

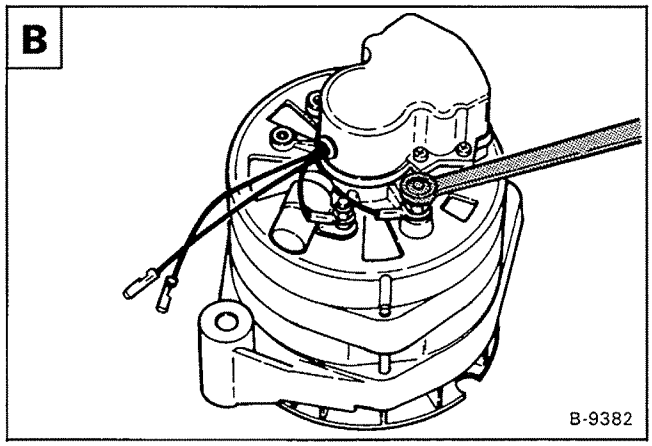
Disconnect the wire terminals from the back of the alternator [A].



Disconnect the battery terminal [B].

Remove the adjustment bolt and the mounting bracket bolt.

Remove the alternator.



⚠ WARNING

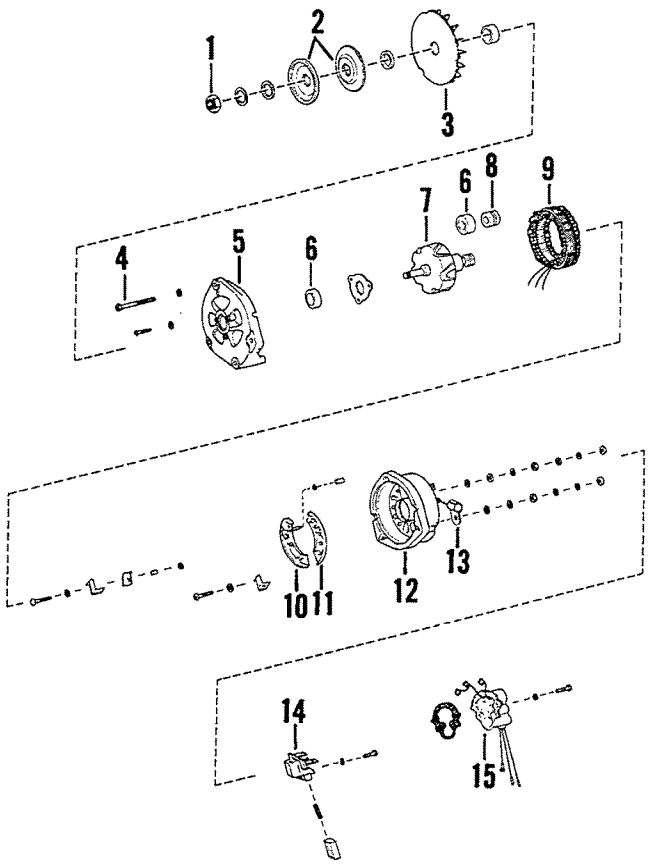
AVOID INJURY

Never service or adjust the machine when the engine is running unless instructed to do so in the manual.

W-2012-1285

A

1. Nut
2. Pulley
3. Fan
4. Bolt
5. Case Half (Front)
6. Bearing
7. Rotor
8. Slip Ring
9. Stator
10. Heat Sink (+)
11. Heat Sink (−)
12. Case Half (Rear)
13. Condenser Assy.
14. Brush Holder Kit
15. Regulator Kit



D-1760

MELROE ALTERNATOR (Cont'd)

Disassembly and Assembly

Disassemble the alternator as shown [A].

Remove three (3) bolts (Item 4) holding halves together.

Pry halves apart.

Use a soft jaw vise to hold rotor while removing pulley nut (Item 1).

Remove front case half (Item 5) from the rotor using a plastic hammer or press..

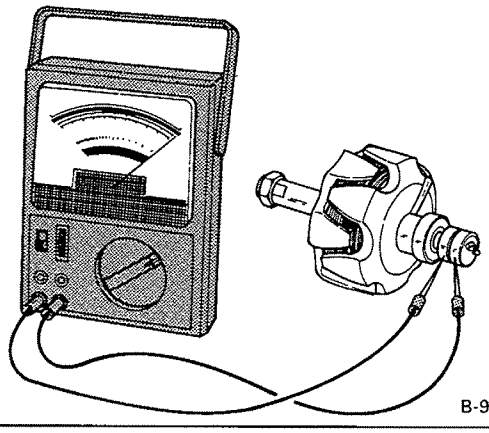
Unsolder the stator wires from the rectifier to test the stator and rectifier. Use a needle nose plier to aid in removal of the wires.

Use the following procedure with an ohmmeter to test the rotor:

Touch both probes on the slip rings. There must be a 3 to 5 ohm reading [B].

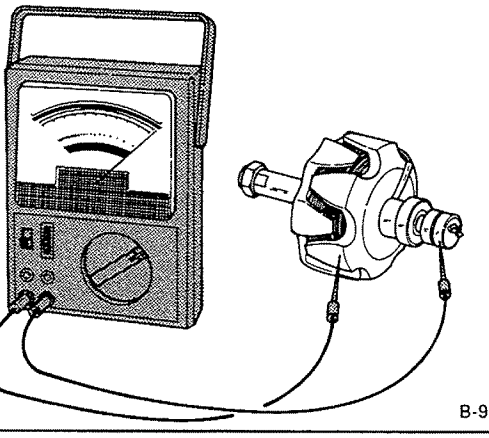
Touch one probe to the shaft and one probe to a slip ring, then to the other. There must be maximum resistance [C].

B



B-9375

C

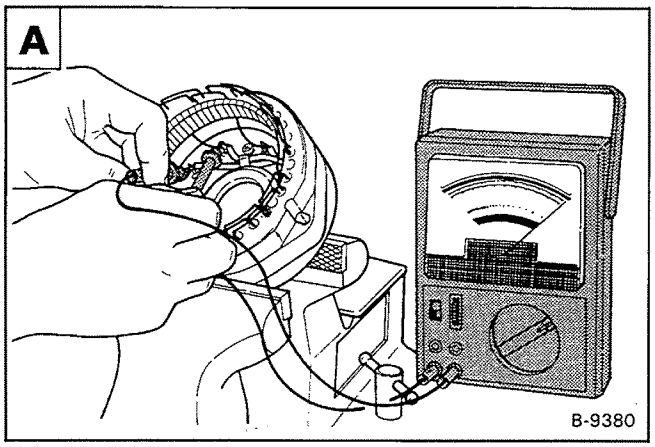


B-9376

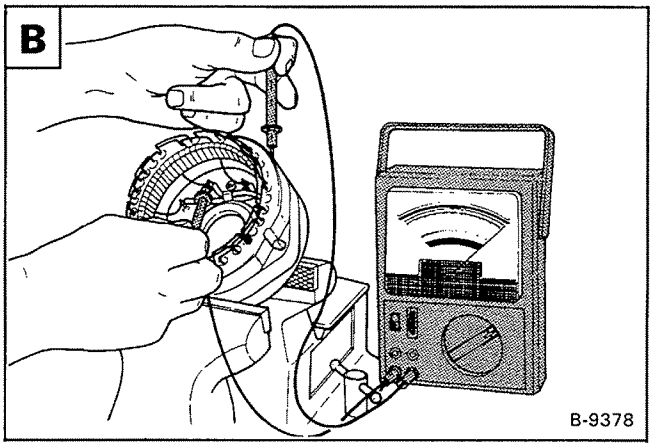
MELROE ALTERNATOR (Cont'd)

Use the following procedure with an ohmmeter to test the stator:

Touch to (2) bare wires of the stator with the probes, take a reading. Move one probe to the other wire. The readings should be the same [A].

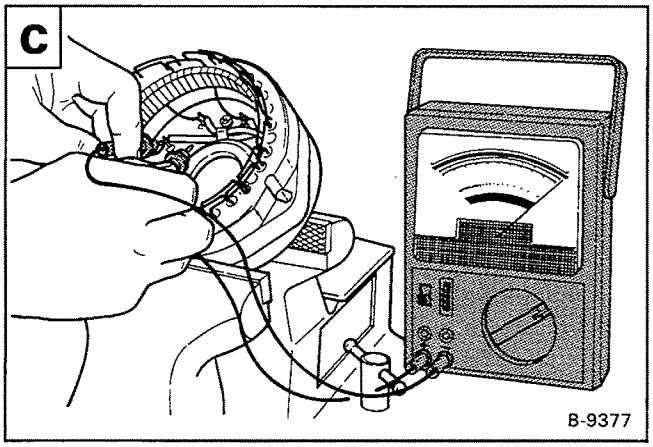


Test for ground by touching one probe on the metal surface of the stator and the other probe on the bare wire. There must be no needle movement [B].

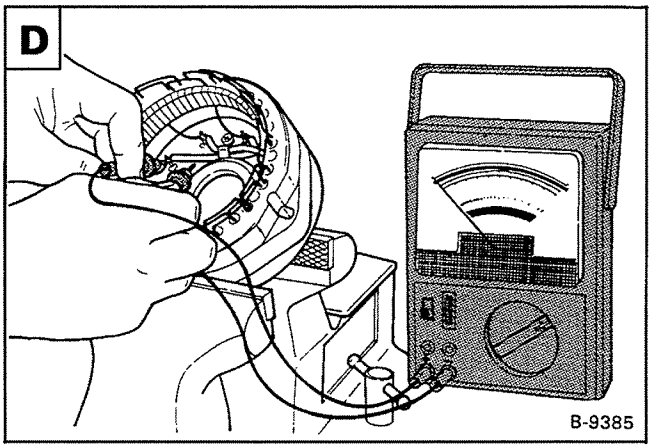


Use the following procedure with a circuit tester to test the rectifier:

Touch the positive probe to the positive diode holder and the negative probe to each diode terminal. There must be continuity [C].

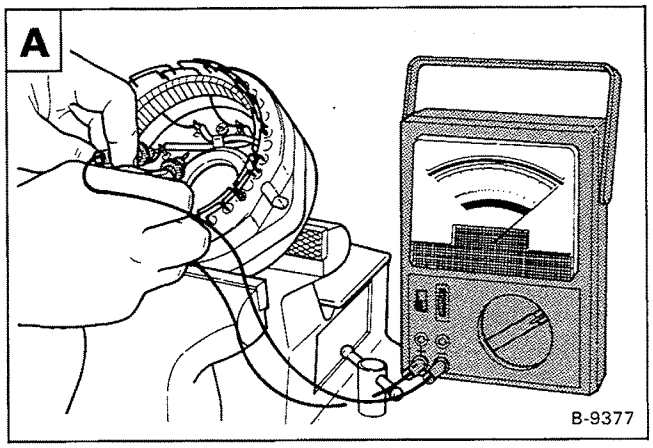
* 

Reverse the probes and check the other direction. There must be no continuity [D].

* 

MANDO ALTERNATOR (Cont'd)

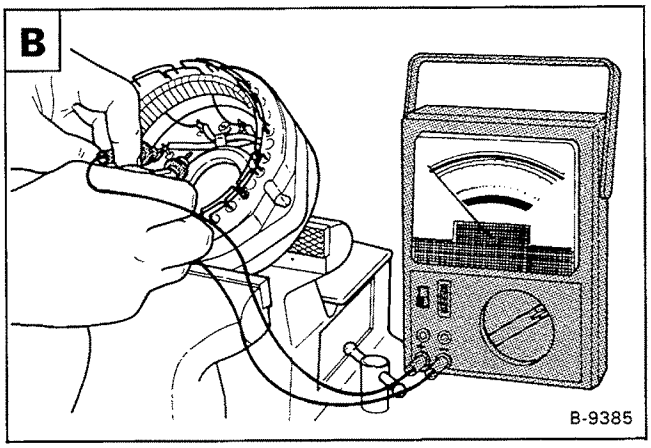
Touch the negative probe to the negative diode holder and the positive probe to each diode terminal. There must be continuity [A].



Reverse the probe and check the other direction. There must be no continuity [B].

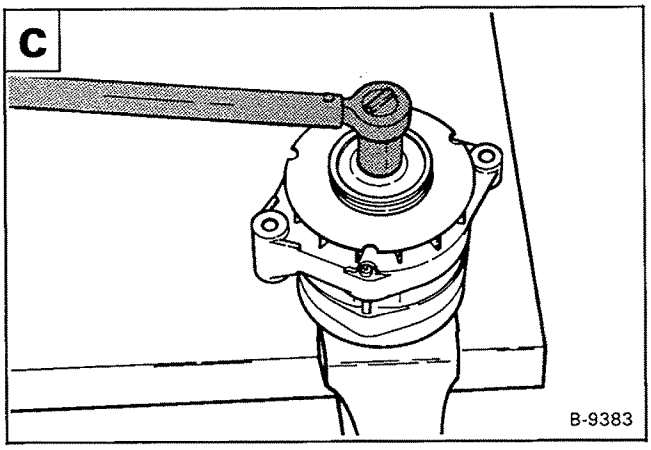
Check the brushes for wear. The maximum length of exposed brushes should be .125" (3 mm).

Replace broken or rusted brush springs.



Reverse the order of disassembly.

Place the rotor in soft jaws when tightening the shaft nut. Tighten to 50 ft.-lbs. (70 Nm) torque [C].



STARTER

Checking the Starter

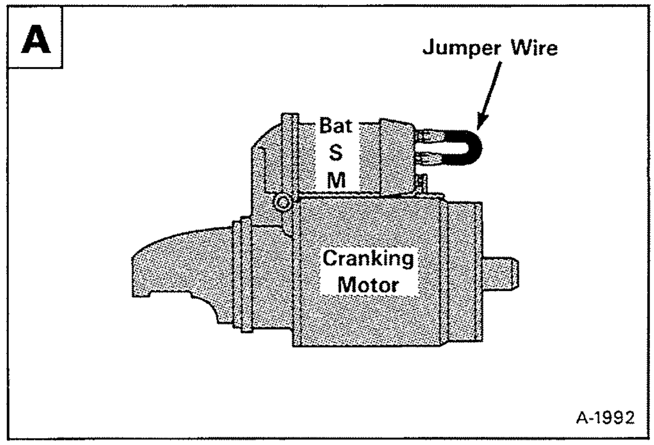
The key switch must be in the "OFF" position.

The battery must be at full charge.

The cable connections must be clean and tight.

Connect a jumper wire between "S" terminal and "BAT" terminal [A].

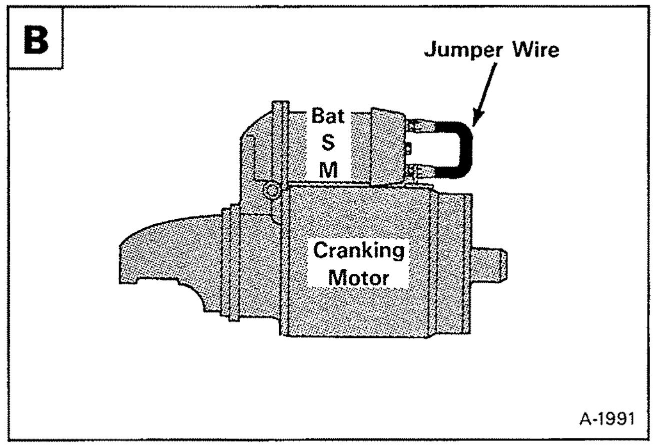
If the starter turns but does not turn the engine, the starter drive has a defect.



Connect a jumper wire between the "M" terminal and the "BAT" terminal [B].

If the starter turns, the defect is in the solenoid.

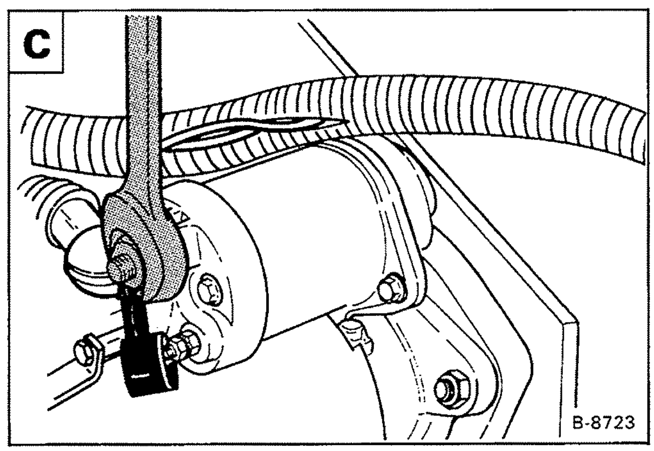
If the starter does not turn, the starter is defective.



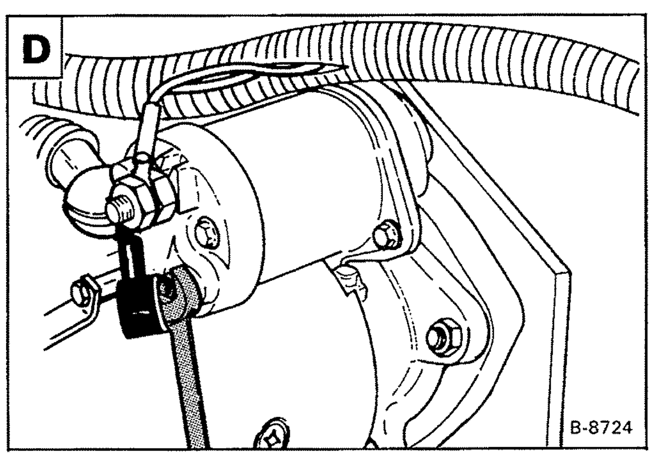
Removal and Installation

Disconnect the negative (—) cable at the battery.

Disconnect the wire at the "BAT" terminal of the solenoid [C].

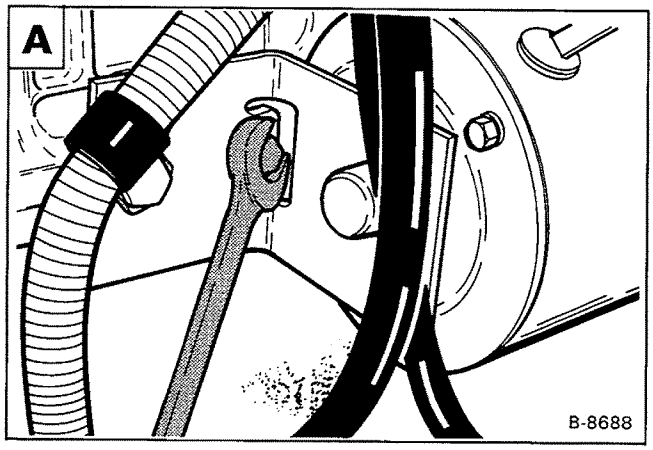


Disconnect the wires at the solenoid [D].

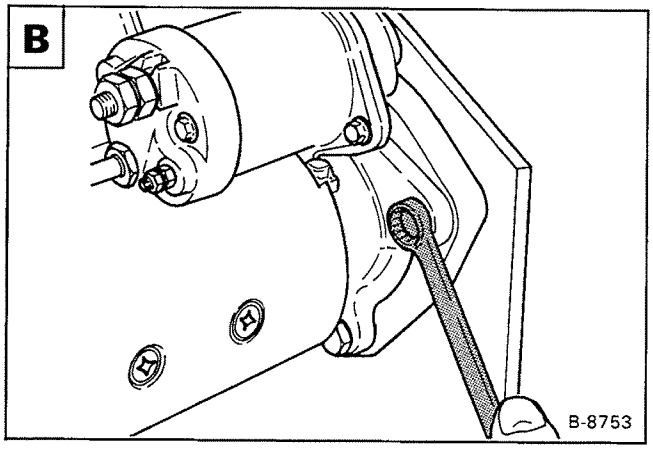


STARTER (Cont'd)

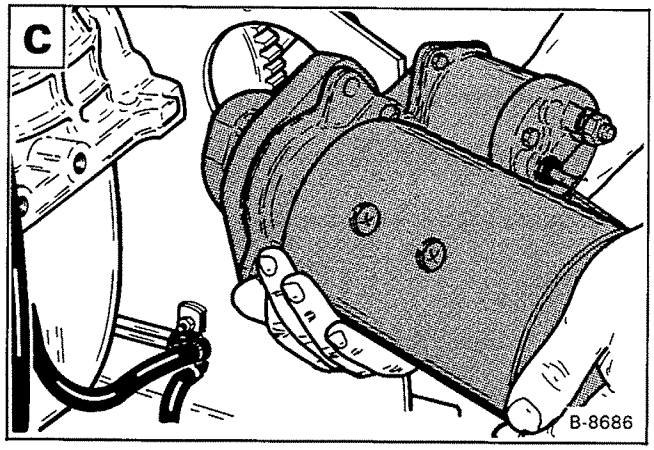
Remove the bolts at the starter bracket [A].



Remove the starter mounting bolts [B].

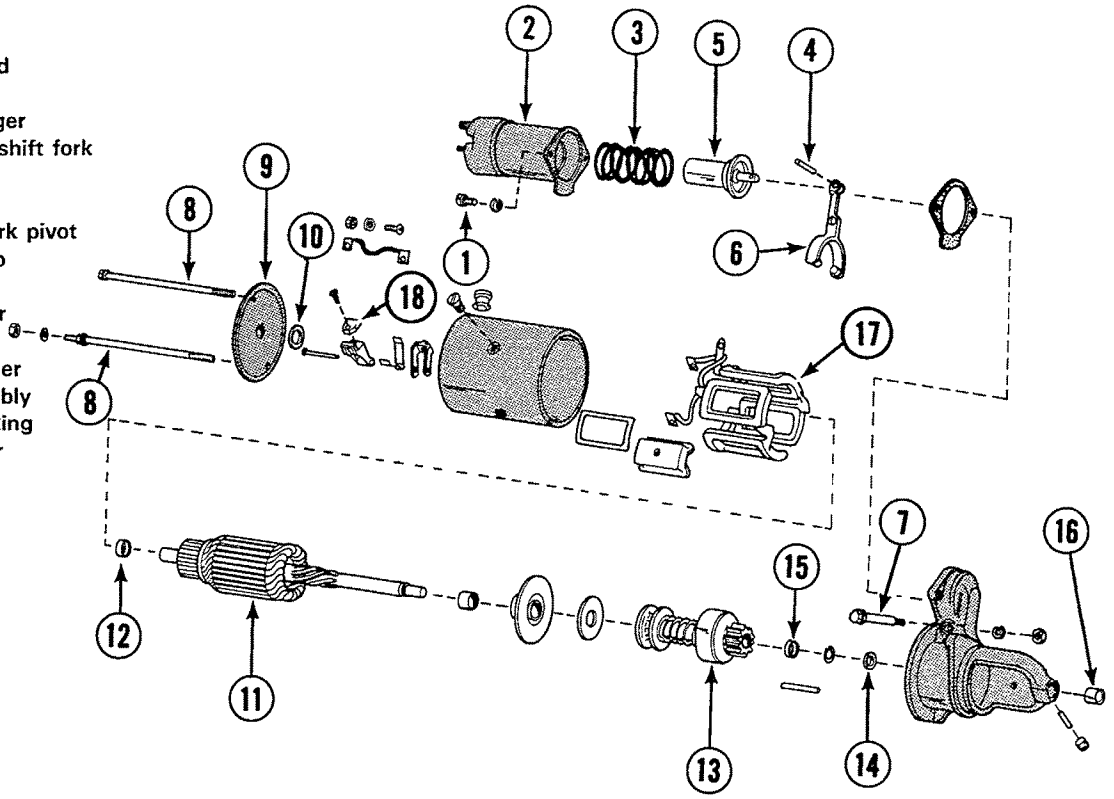


Remove the starter from the engine [C].



A

1. Bolt, solenoid
2. Solenoid
3. Spring, plunger
4. Pin, plunger/shift fork
5. Plunger
6. Shift Fork
7. Bolt, shift fork pivot
8. Bolt, end cap
9. End Cap
10. Shim Washer
11. Armature
12. Thrust Washer
13. Drive Assembly
14. Drive Stop Ring
15. Thrust Collar
16. Bushing
17. Field Coils
18. Brush



C-1802

STARTER (Cont'd)

Disassembly and Assembly

Disassemble the starter as shown [A].

⚠ WARNING

Wear safety glasses to prevent eye injury when any of the following conditions exist:

- **When fluids are under pressure.**
- **Flying debris or loose material is present.**
- **Engine is running.**
- **Tools are being used.**

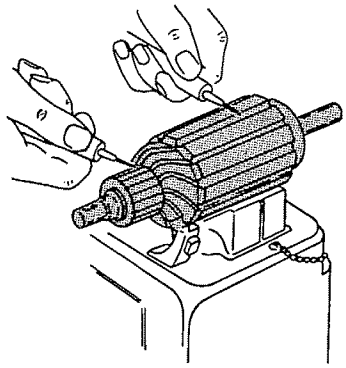
W-2019-1285

Cleaning and Inspection

Use a brush and air pressure to clean the drive, field coils, armature and starter housing.

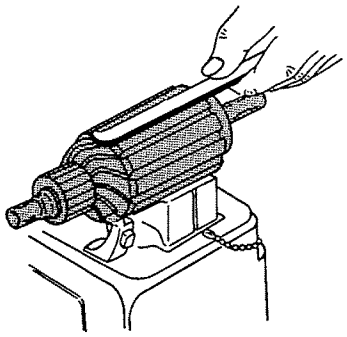
NOTE: **Do not use solvent to clean the drive assembly. The solvent will remove the lubricant and the drive will slip.**

B



A-1995

C



A-1994

Check the following items:

Armature

To check the armature for grounds, place one probe from the ammeter on the iron core and one probe on the commutator. The test lamp should not light Page 6—14 [A].

To check for open circuit, place the armature on a growler as shown. Place a hacksaw blade on the armature. If the hacksaw blade vibrates while the armature rotates, the winding is short circuited and must be replaced Page 6—14 [B].

Also check:
Broken or burned insulation
Loose connections at commutator
Worn shaft or bearings
Rough commutator

Brush Holders

Brush springs
Broken insulation
Spring tension

Field Coils

To test for a continuity, disconnect the field widing ground connections. Tough one probe to the filed connector and one probe to the brush. The lamp should not light [A].

To test for ground, touch one probe to the body and the other probe to the field windings end of the brush. The lamp should not light [B].

Also check:
Broken or burned insulation
Brush connections
Brushes

Drive Gear

Worn teeth
Tooth engagement (Drive gear must engage ring gear by 1/2 the depth of ring gear teeth)

Replacing the Brushes

Remove the brush screw and remove the brush. Replace the brush wire by screws or by cutting the old wire. Solder the new brush wire to the ends of the old wire, or screw the wire in place.

Assembly: Reverse the order of disassembly.

Put a small amount of grease on the splines of the armature and the bushings.