Ural and Dnepr Generators and Alternators

Part IV: Г-424 (G-424) Alternator

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Types of Generators/Alternators for Ural (Урал) and Dnepr (Днепр) (01/11)

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Generator/ Alternator	Type	Vintage	Nominal Voltage	Current	Nominal Power	Motorcycles	
						Ural(IMZ)	Dnepr (KMZ)
Г-11 (G-11) (P/N: 72181)	DC Generator	1941-1951	6-Volt (7-Volt)	7-Amp	45-Watts	M-72	Not Used
Г-11А (G-11A) (P/N: 72181-A)	DC Generator	1952-1957	6-Volt (7-Volt)	7-Amp	45-Watts	M-72, M-72M , M-61	M-72, M-72N, early K-750
Г-414 (G-414) (P/N: 750181)	DC Generator	1957-1974	6-Volt (7-Volt)	10-Amp	65-Watts	M-62, M-63, M-66	K-650, later K-750, K-750M, MB-750, MB-750M, MT-8, MT-9, MT-12
Г-424 (G-424) (P/N: 3701000)	Alternator (Built-in Rectifier)	1974-1998	12-Volt (14-Volt)	14-Amp	150-Watts	M-67, M67.36, IMZ 8.103 Series	MB-650, MB-650M, MT-10, MT-10.36, MT-11, MT-16
Hitachi (Limited Appearance)	Alternator/ Starter	1998-1998.5	12-Volt (14-Volt)	18-Amp	300-Watts	IMZ 8.103 and 8.107 “650” Series	Not Used
14.3771 (RPOC) (P/N: 14.3771-010)	Alternator (Built-in Rectifier & Regulator)	1998.5-2004	12-Volt (14-Volt)	35-Amp	500-Watts	IMZ 8.103, 8.103X, 8.123, 8.123X “650 & 750” Series	Not Used
Nippon Denso (P/N: IMZ-8.1037-18092)	Alternator (Built-in Rectifier & Regulator)	2004-present	12-Volt (14-Volt)	55-Amp	770-Watts	IMZ 8.103, 8.103X, 8.123, 8.123X “750” Series	Not Used

Notes:

1. Nomenclature: The Cyrillic letter “Г” transliterates (Russian-to-Latin) to “G” or “L” or “T.” Thus we see Г-414 or G-414 or L-414 or T-414, all for the same part.
2. Cannot use Г-424 Alternator with discharged battery or without battery.
3. MB-750 = MW-750, MB-750M = MB-750M
4. The frame (case) of the Г-11/Г-11А generator is positive (positive-ground).
5. Г-414 Generator: P/N: 750181 6-Volt (negative ground), whereas P/N: 750181-A (positive-ground) for fitting Г-11А’s into early K-750’s.

Ural (Урал) - Dnepr (Днепр) Generator/Alternator Time-Line (01/11)

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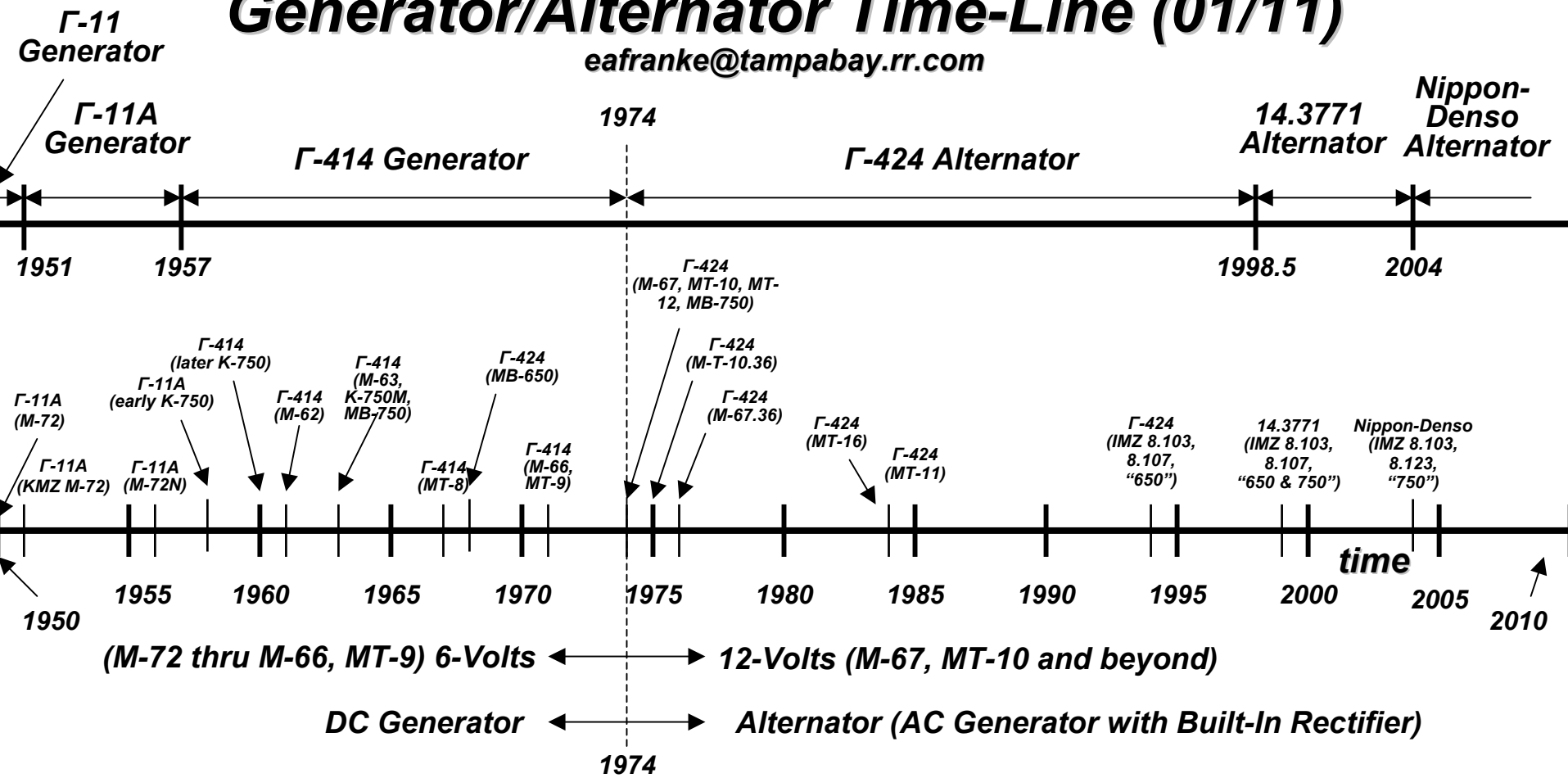


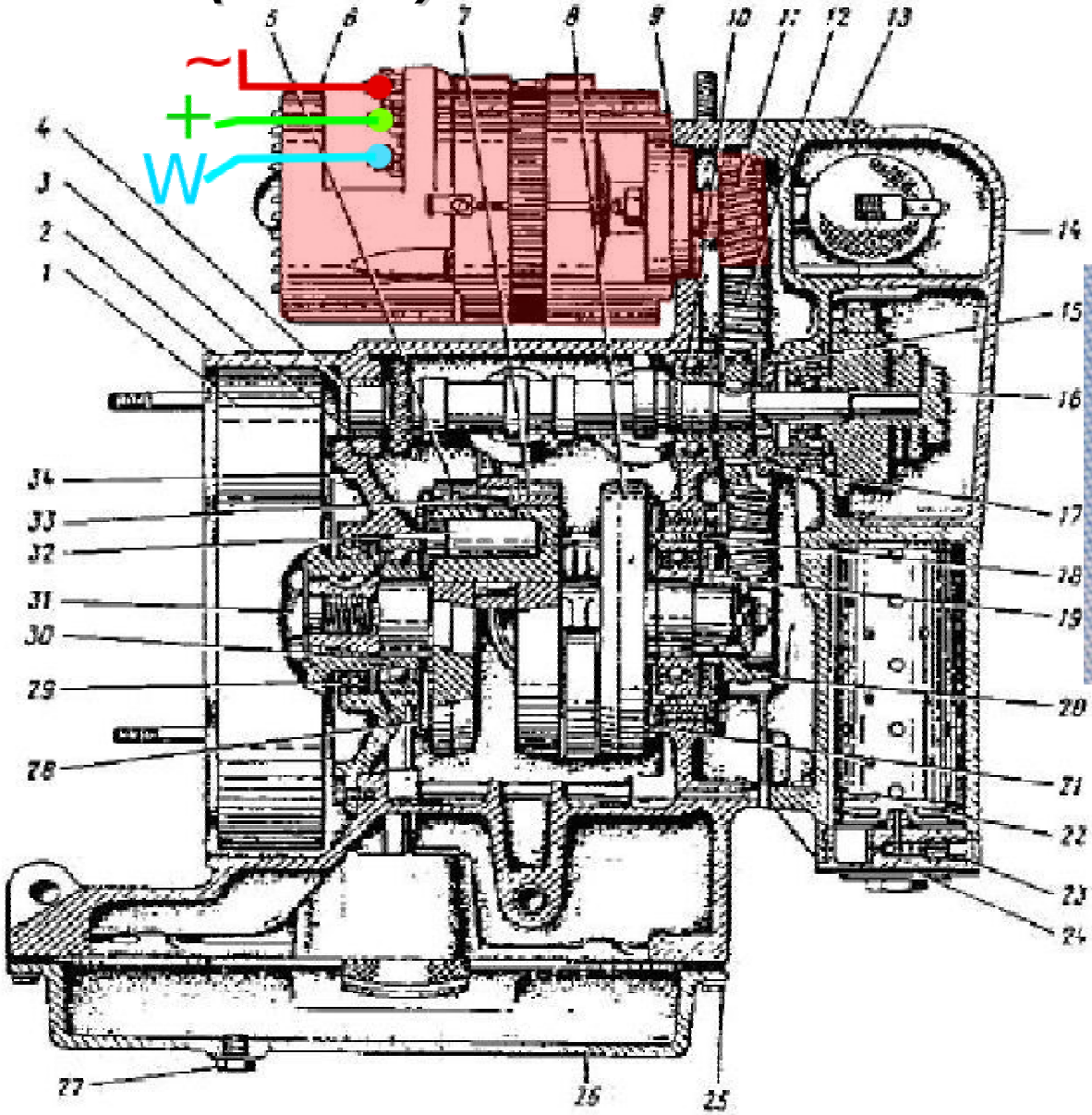
Alternators have progressed in output voltage and power, From the Г-11 (G-11) generator of 6-Volts/45-Watts in 1941, the Г-11А in 1952, the Г-414 6V/65 W in 1957, the Г-424 of 12V/150W in 1974, the 14.3771 of 12V/500W in 1998.5, to the present-day Nippon-Denso alternator of 12-V/770W.

Г-424 (G-424) 12-Volt Alternator (1974-1998)

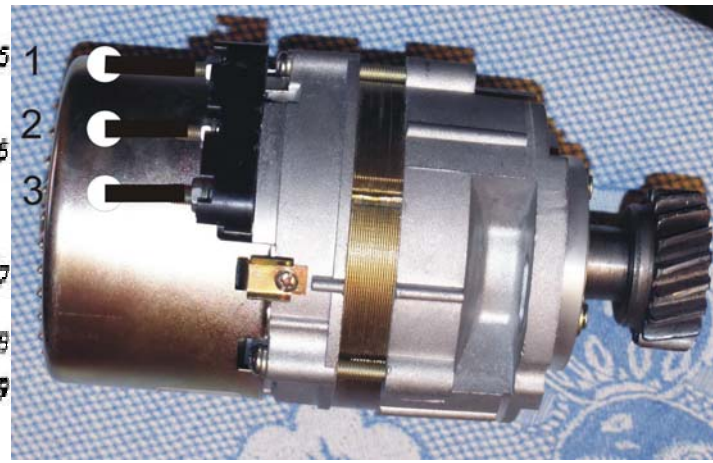
- 12-Volt / 11-Ampere avg. 14-Ampere max. / 150-Watt Alternator
- Maximum Short-Term Overload: 200 W
- Rotor Speed: 1,300 rpm (14-V, 0-A), 2,400 rpm (11-A), 5,000 rpm (Max)
- Used on;
  - Ural: M-67, M-67.36, IMZ 8.103 Series
  - Dnepr: MB-650, MB-650M, MT-10, MT-10.36, MT-11, MT-16
- Used in Conjunction with Mechanical PP-330 & Solid-State 33.3702 Regulators
- 3-Ø (three-phase) Generation, 12-Pole Construction
- Built-in Rectifier: MSF-2A (ВБГ-2А)

The higher-output capability of the Г-424 alternator was needed to provide a migratory path for electric-start.

Г-424 (G-424) Alternator and Terminal Identification



1- ~
2- +
3- ш



- *Polarity: Negative Ground*
- *Direction of Rotation (drive side): Right (clockwise)*
- *Weight: 3.8 kg*

This diagram is handy because the terminals are unlabelled.

Structure and Features of the Г-424 Alternator

- Lid (1) from drive side has an adjustable eccentric cylindrical rotor axis
- Drive-side has rubber gasket (2) for environmental protection
- Internal Bearings lubricated with single and double sided seals
- Rotor (3) rotates with windings excitation powered via rings
- Three-phase (4) stator winding connected into a star with insulated neutral
- All phases soldered to the head bolts fastening rectifier unit (8)
- Two covers and end shield (6), and stator fastened with three screws MB
- Brush with cable attached to the plate and holder (7) held with 6 captive screws
- Integrated semiconductor (8) rectifier unit type MSF-2A
- Rectifier unit (8) consists of three monoblocks, cast aluminum fins for heat sink
- Axial fan (9), under protective jacket (10) on radius of the rotor shaft (3), cools the rectifier unit
- Terminal block for connection to alternator

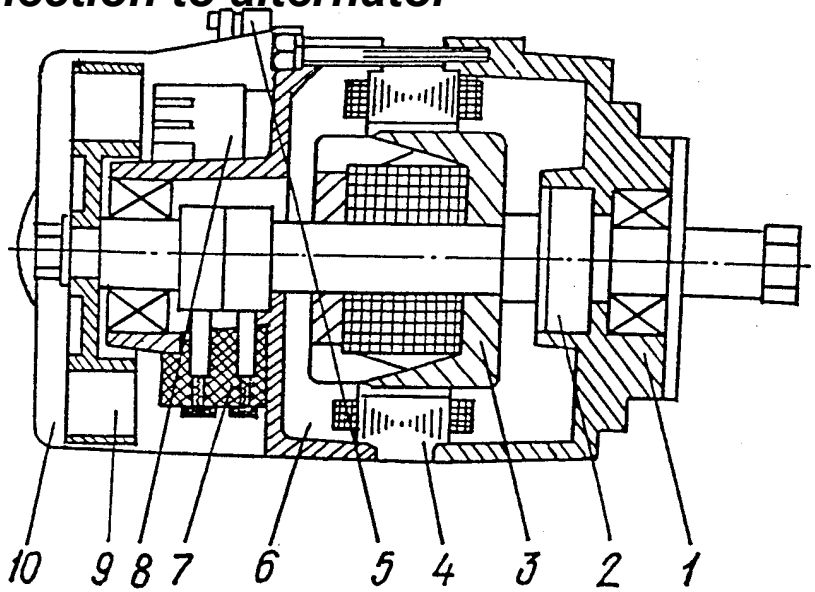
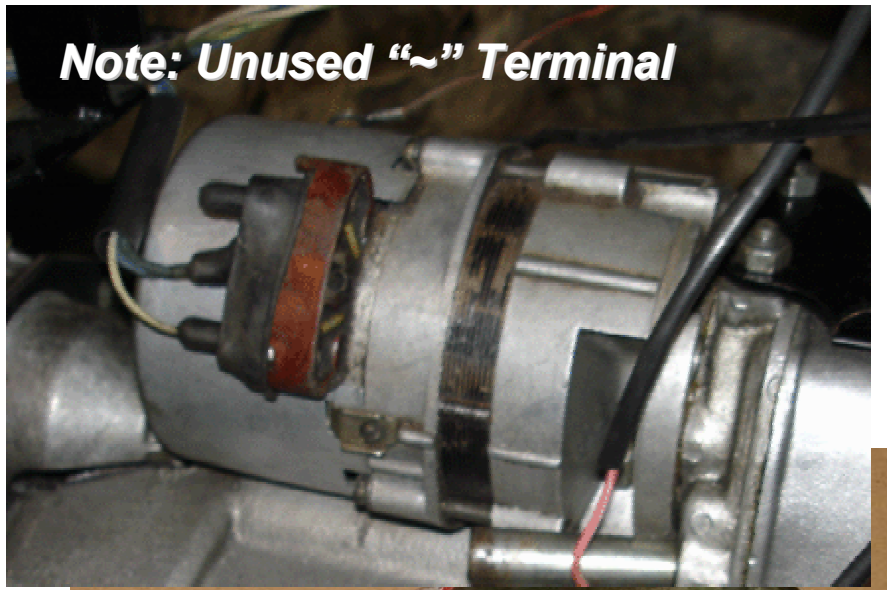


Fig. 40. Generator Г-424:

1 — end shield; *2* — rubber collar; *3* — rotor; *4* — stator; *5* — terminal block; *6* — end shield; *7* — brush holder; *8* — rectifier unit; *9* — axial fan; *10* — guard

Г-424 Alternator 12-Volts/11-Amp/150-Watt (01/11)



The concentrically-located rotor shaft is made for the newly-designed engine case.

Г-424 (G-424) Alternator

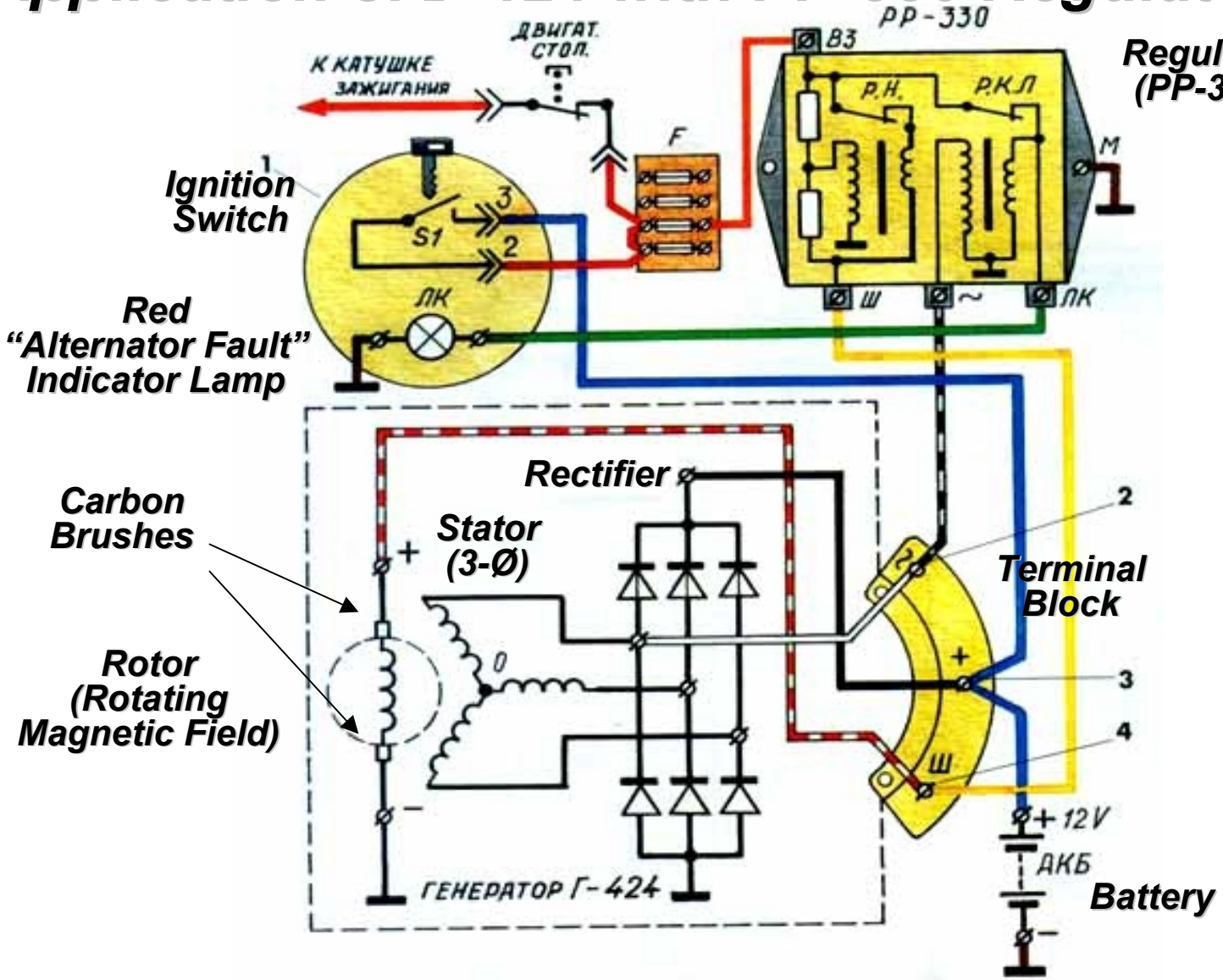
Rubber Cover for 3-Terminal Connection

Г-424 (G-424) Alternator

Г-424 Alternator Parts Breakdown (01/11)

Pinion Gear

Application of Г-424 with PP-330 Regulator (01/11)



The 3-Ø (three-phase) winding produces three waves, 120° apart, for a more continuous supply of current.

MT-11 and MT-16 Alternator/Regulator Circuitry (01/11)

Fuse Block

to Ignition Module thru Kill Switch

B3 (BZ)

PP-330

(RR-330)

ЛК (LC) ~ Ш (W)

2

3

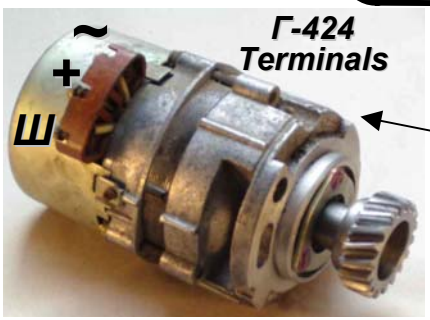
Alternator Fault Indicator (Dash)

Ignition Switch

Master Switch (deleted for electric-start)

Г-424 (G-424) Alternator

+ ~ Ш



~ + Ш

Г-424 Terminals

Diagram is useful when unmarked wires are removed from unmarked terminals!

\+ -

6MTS-9 (12-Volt) or 2X 3MT-6 (6-Volts each)

Fuse Block

to Ignition Module thru Kill Switch

33.3702

ЛК (LC) Ш (W) +

2

3

Alternator Fault Indicator (Dash)

Ignition Switch

~ (not used)

Master Switch (deleted for electric-start)

Г-424 (G-424) Alternator

+ ~ Ш

\+ -

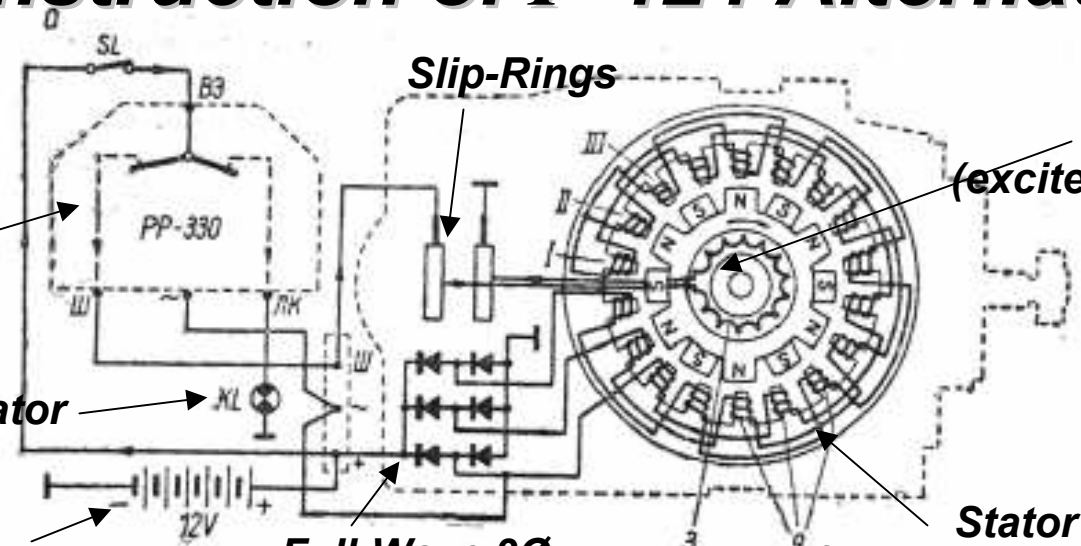
6MTS-9 (12-Volt) or 2X 3MT-6 (6-Volts each)

'+' (output) goes to the battery

'W' (field) goes to the regulator

'~' is not used. Used only with the old electromechanical regulators (PP-330).

Construction of Г-424 Alternator



Slip-Rings

Rotor
(exciter magnetic field)

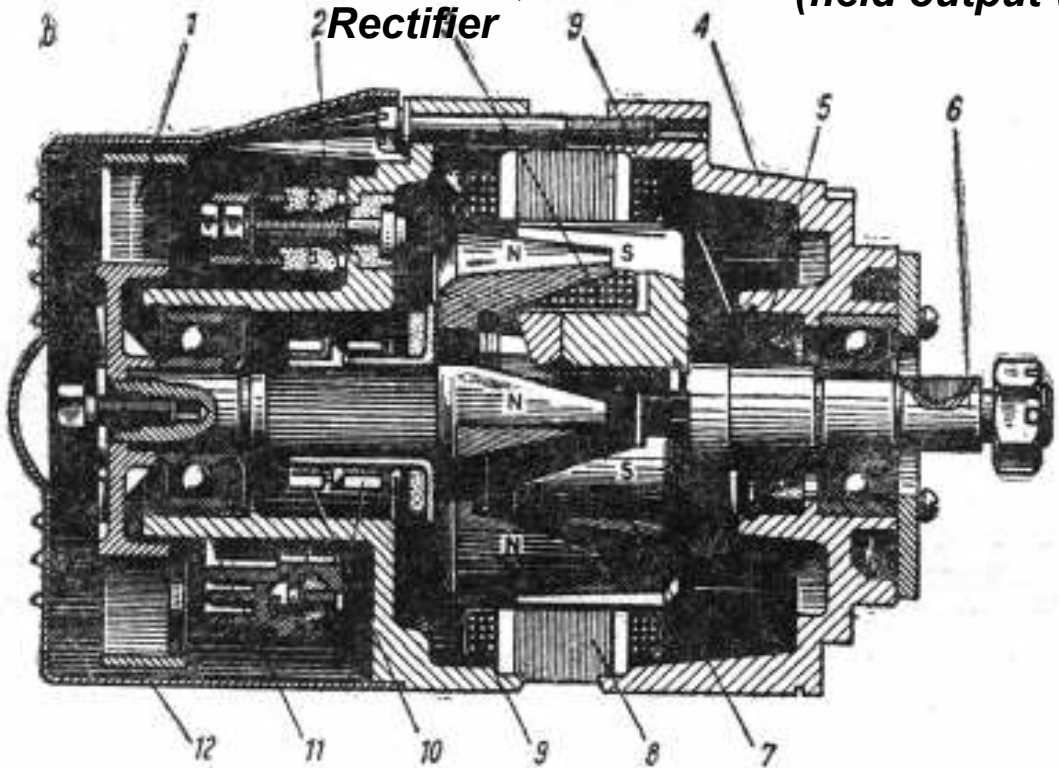
PP-330
Regulator

Dash "Fault" Indicator

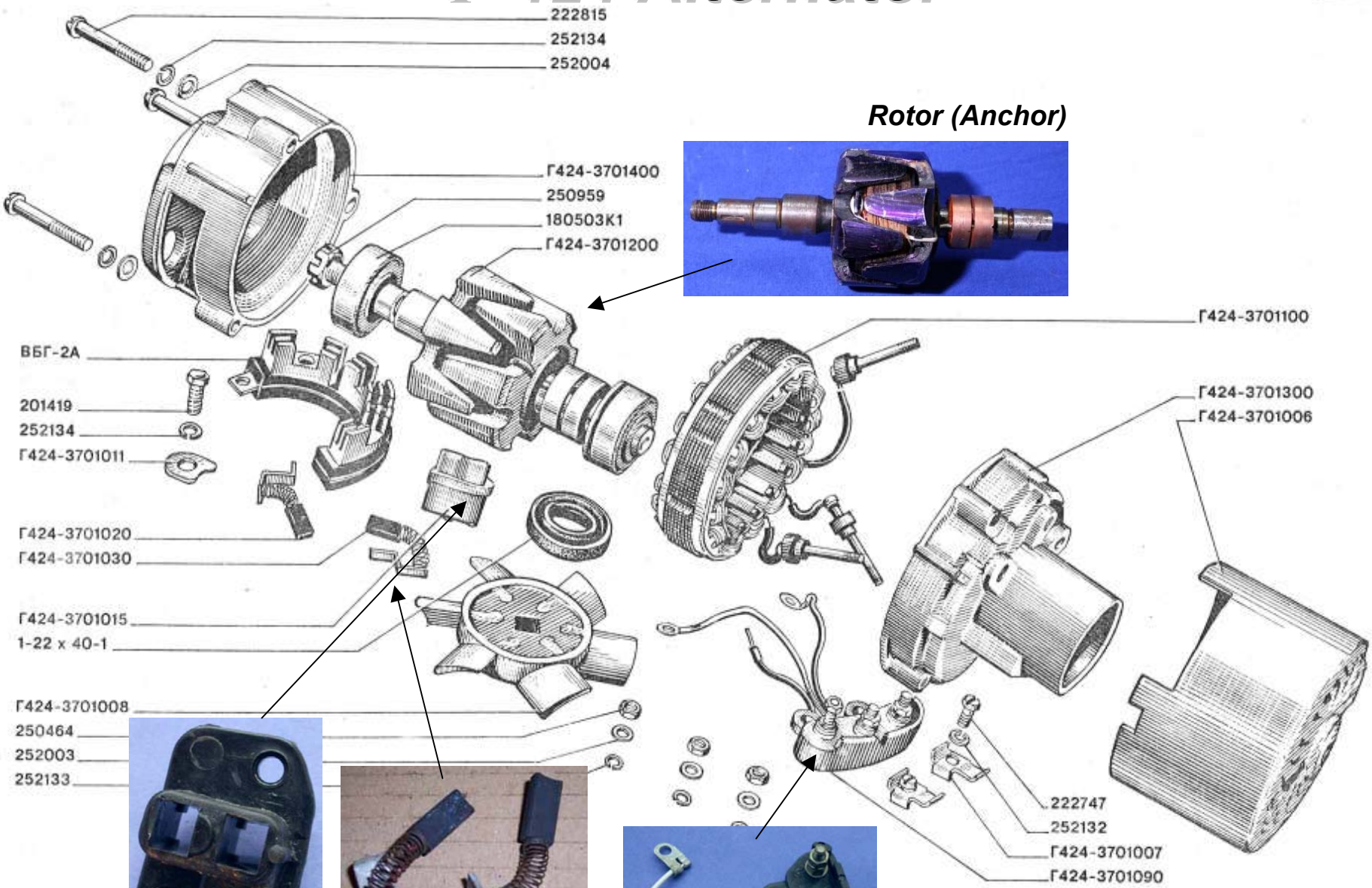
12-Volt Battery

Full-Wave 3Ø
Rectifier

Stator
(field output winding)



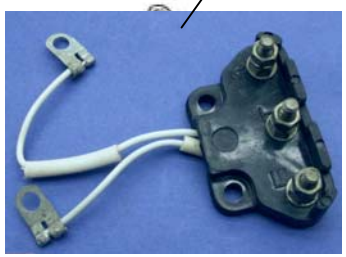
Г-424 Alternator



Rotor (Anchor)

Brush Holder

Carbon Brush Set

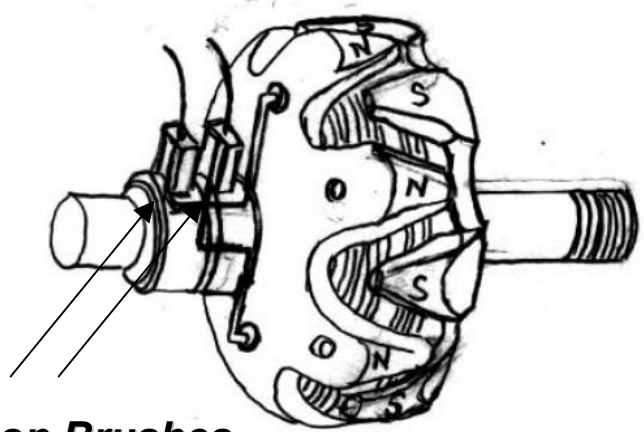


Terminal Block

Г-424 Diode Pack mounted on Diode Bridge (01/11)

(If battery wires have been connected the wrong way, even for a second, you'll need new diodes in the back of the alternator.)

Pair of Brushes and Rotor for Г-424 Alternator

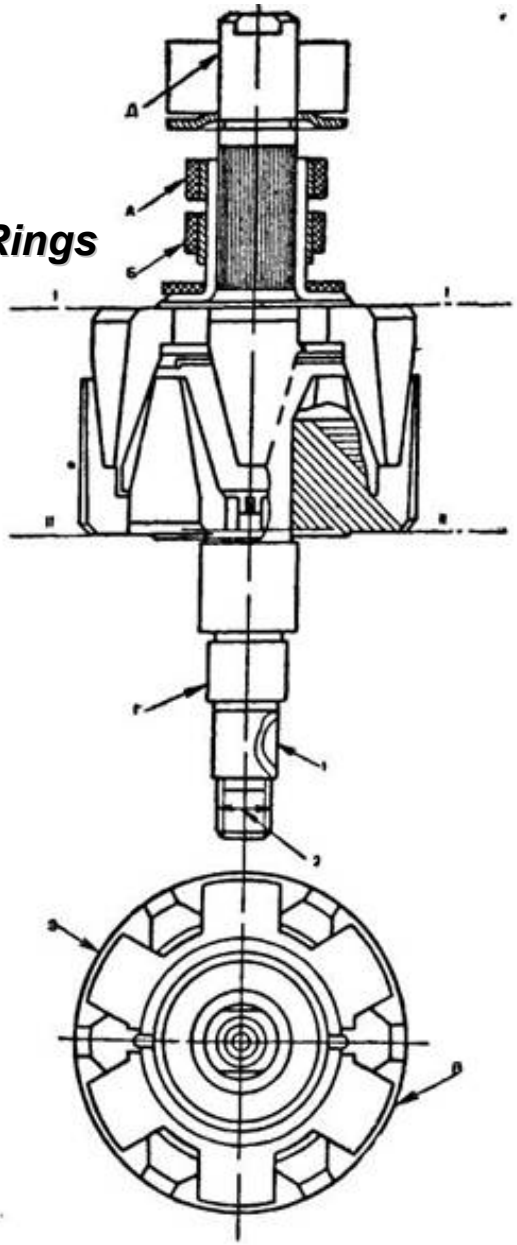


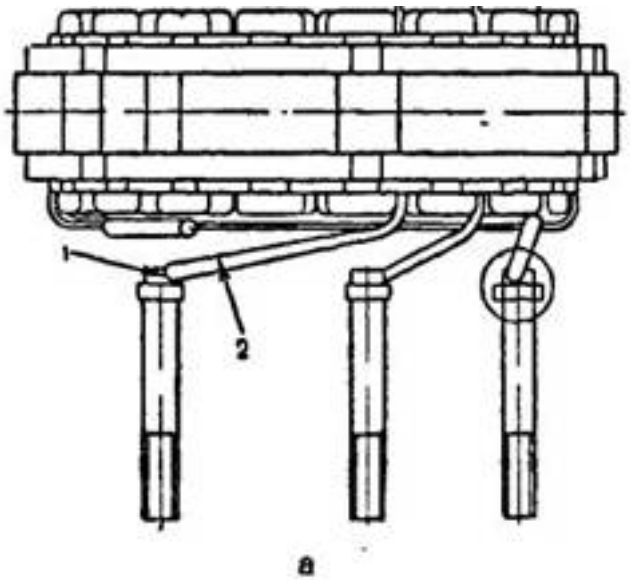
Carbon Brushes on Exciter Slip-Rings

When validating a generator (as in its operation), it must be remembered that a no-load may destroy the rectifier.

Alternator Г-424 Rotor and Stator (01/11)

Exciter Slip-Rings





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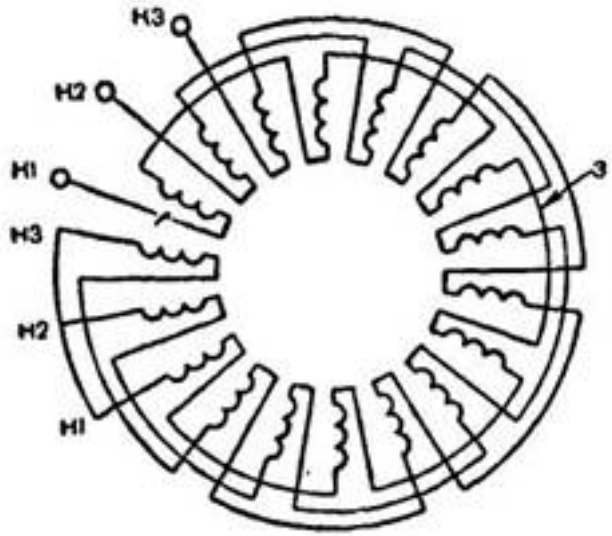
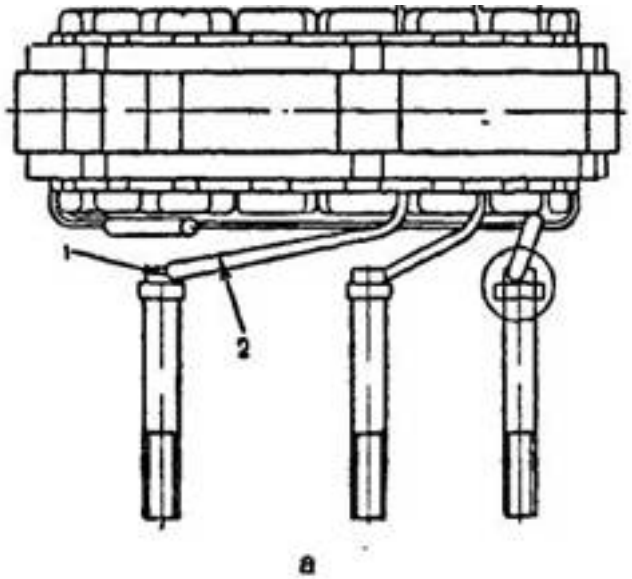
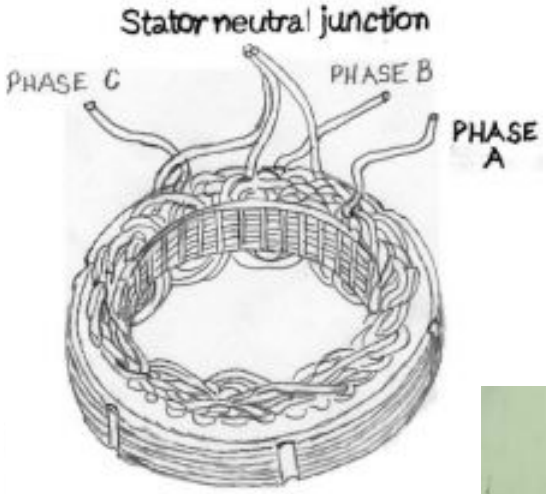
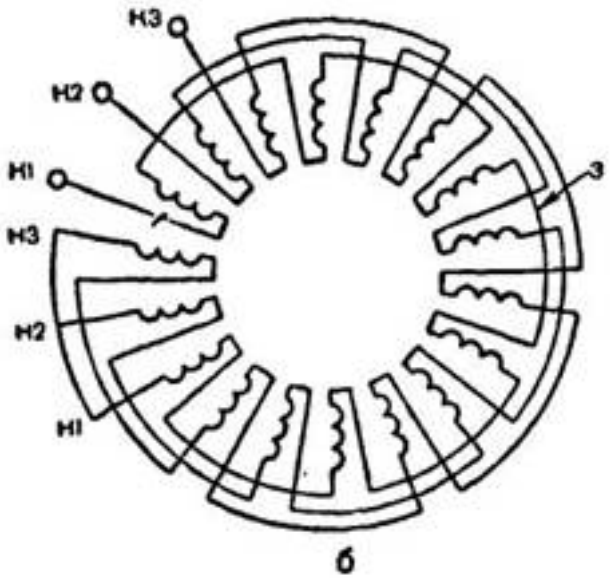


б

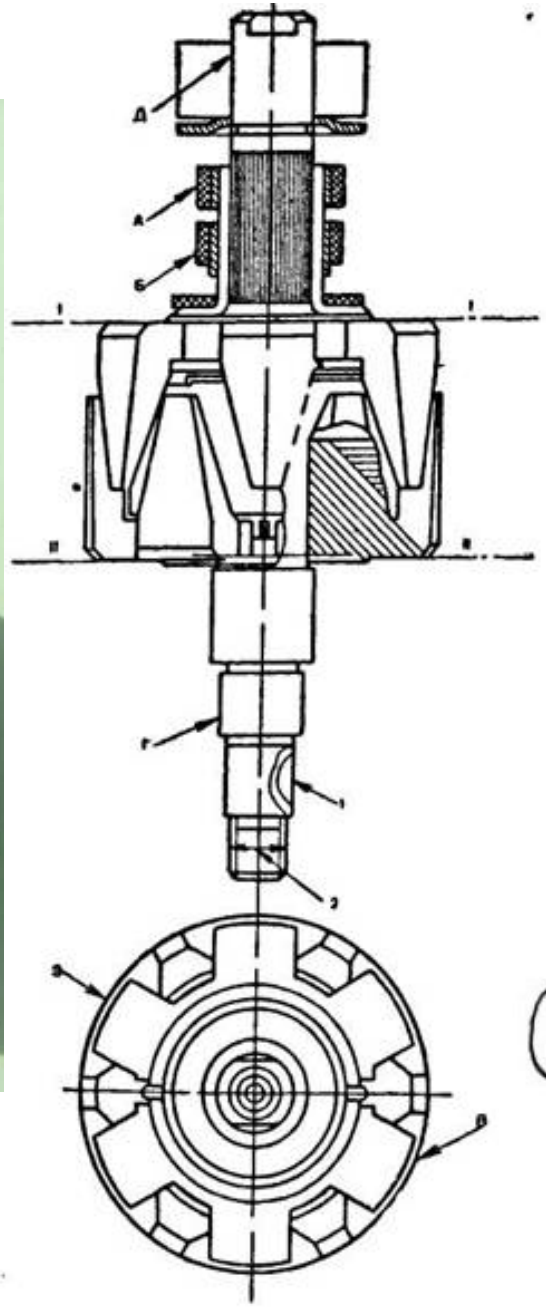
Alternator Г-424 Stator (01/11)

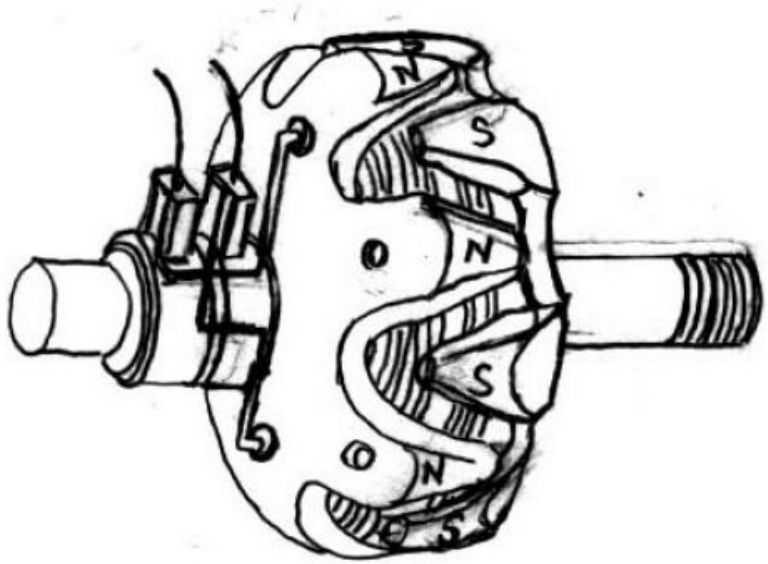


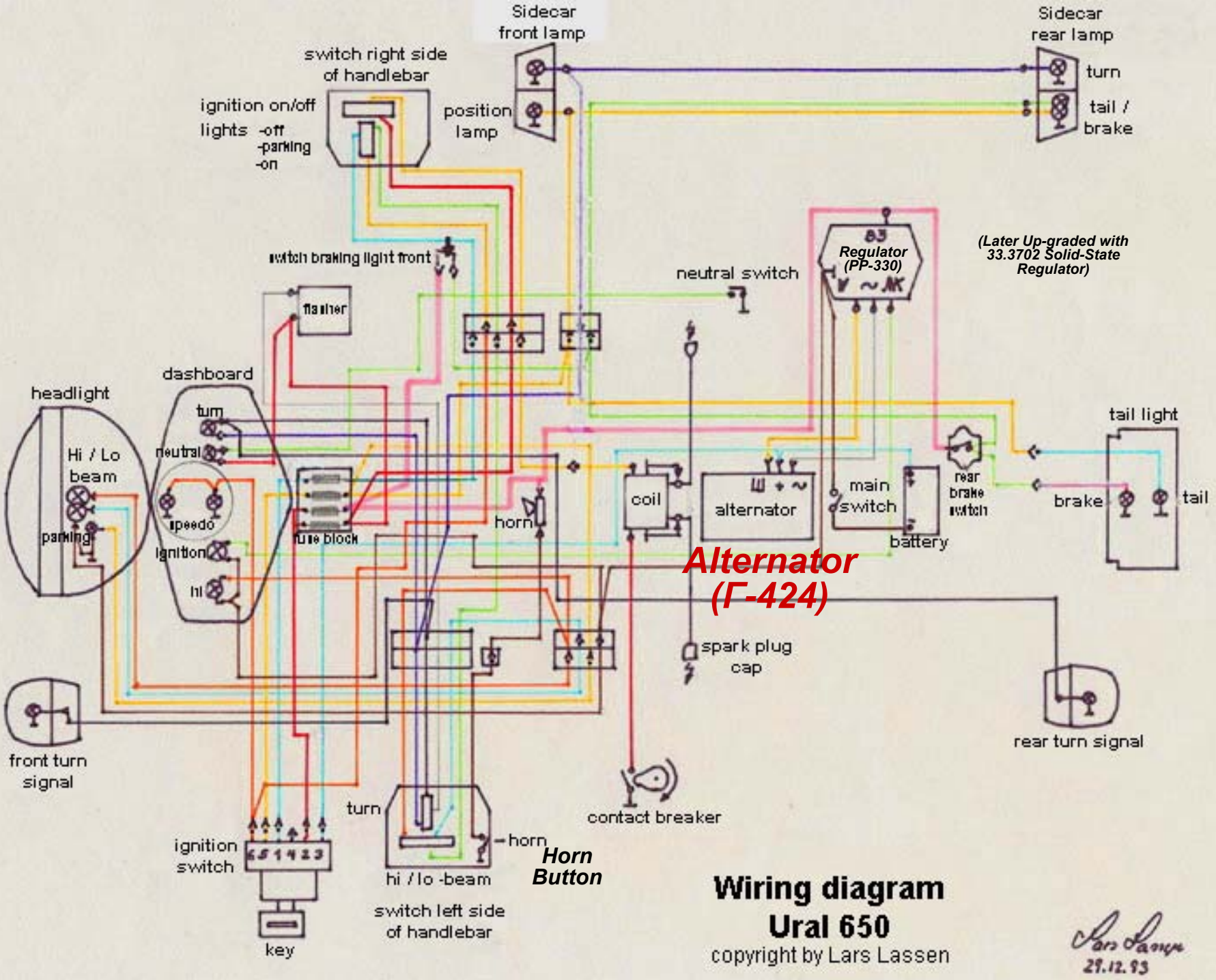




Alternator Г-424 Rotor (01/11)



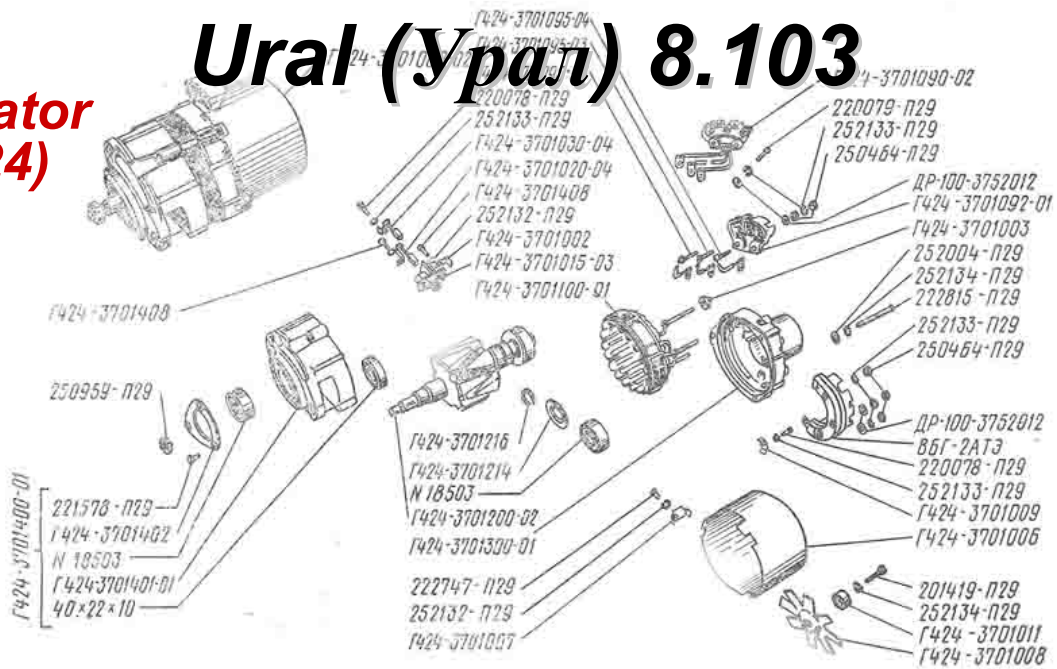


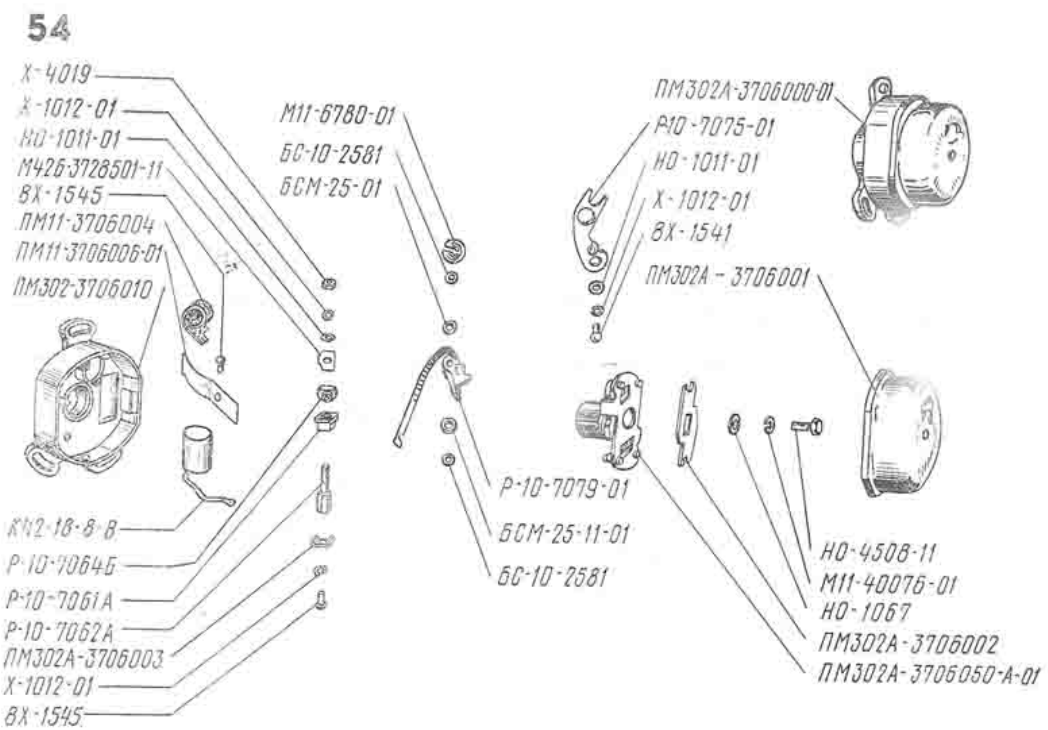

Sidecar front lamp
Sidecar rear lamp
switch right side of handlebar
ignition on/off
lights -off -parking -on
position lamp
turn
tail / brake
switch braking light front
flasher
neutral switch
Regulator (PP-330)
(Later Up-graded with 33.3702 Solid-State Regulator)
dashboard
headlight
Hi / Lo beam
parking
turn
neutral
speedo
ignition
hi
fuse block
horn
coil
alternator
main switch
battery
rear brake switch
tail light
brake
tail
Alternator (Г-424)
spark plug cap
front turn signal
rear turn signal
contact breaker
turn
horn
ignition switch
hi / lo -beam
switch left side of handlebar
key
Horn Button
Wiring diagram
Ural 650
copyright by Lars Lassen
29.12.93

Ural (Урал) 8.103

Alternator (Г-424)

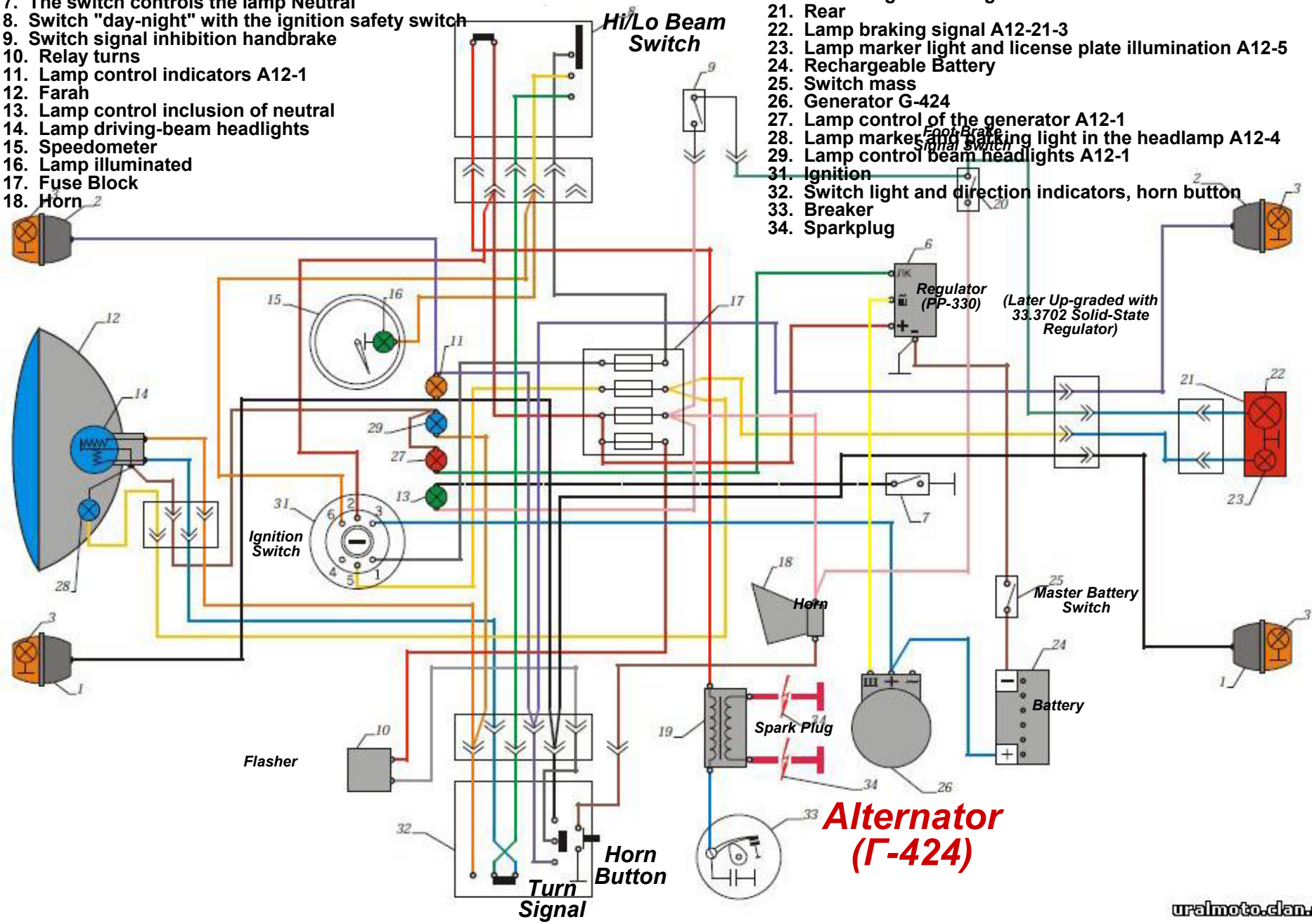
G-424 Alternator
PP-1 Regulator
KM-01 Coil
PM-302A Breaker
3MT-7 Battery





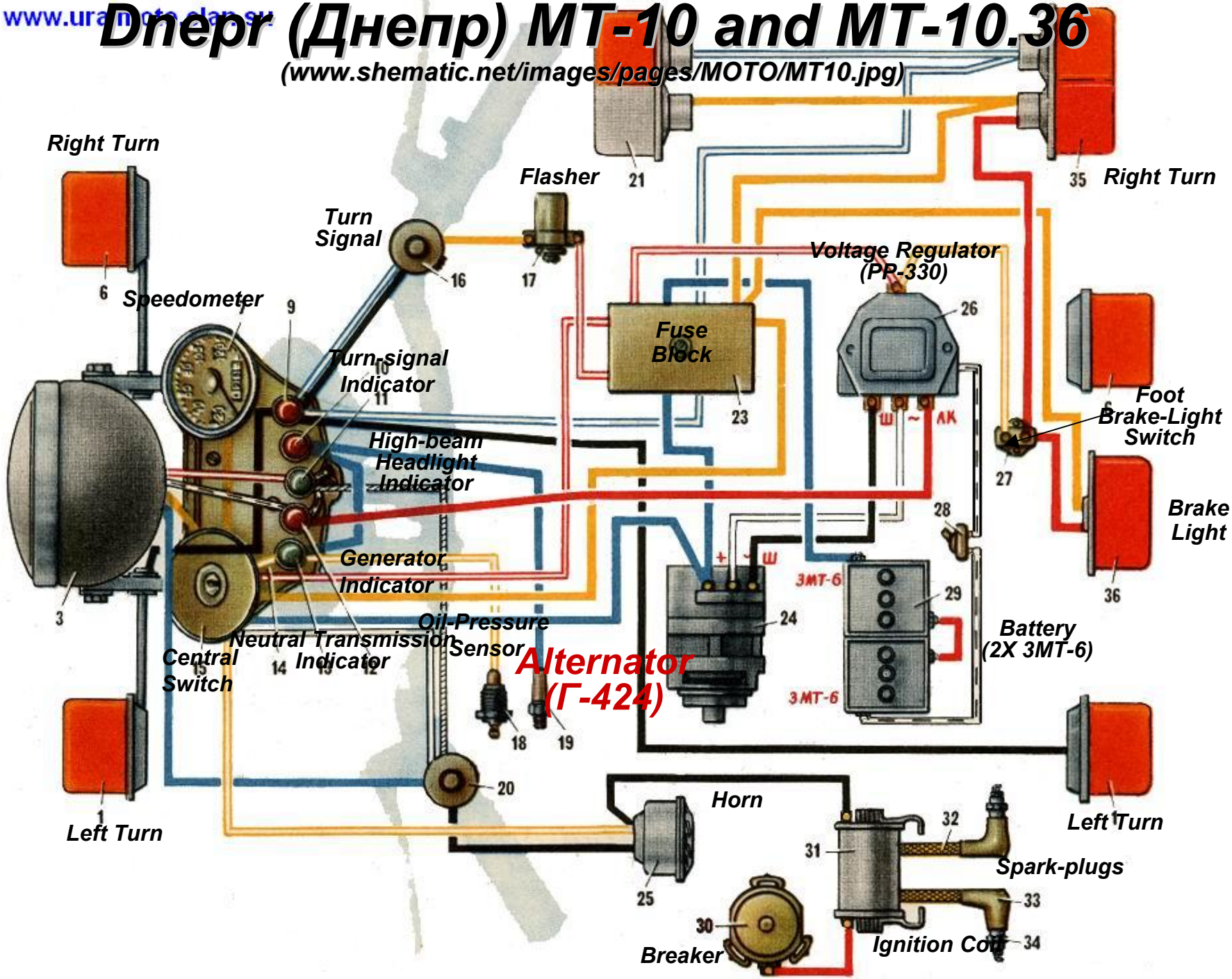
Ural 8.103-10 (40), 8.123-10

1. Left indicator lamp
2. Right direction indicator
3. Lamp indicators A12-21-3
6. Regulator
7. The switch controls the lamp Neutral
8. Switch "day-night" with the ignition safety switch
9. Switch signal inhibition handbrake
10. Relay turns
11. Lamp control indicators A12-1
12. Farah
13. Lamp control inclusion of neutral
14. Lamp driving-beam headlights
15. Speedometer
16. Lamp illuminated
17. Fuse Block
18. Horn
19. Ignition coil
20. Switch signal braking foot brake
21. Rear
22. Lamp braking signal A12-21-3
23. Lamp marker light and license plate illumination A12-5
24. Rechargeable Battery
25. Switch mass
26. Generator G-424
27. Lamp control of the generator A12-1
28. Lamp marker and parking light in the headlamp A12-4
29. Lamp control beam headlights A12-1
31. Ignition
32. Switch light and direction indicators, horn button
33. Breaker
34. Sparkplug

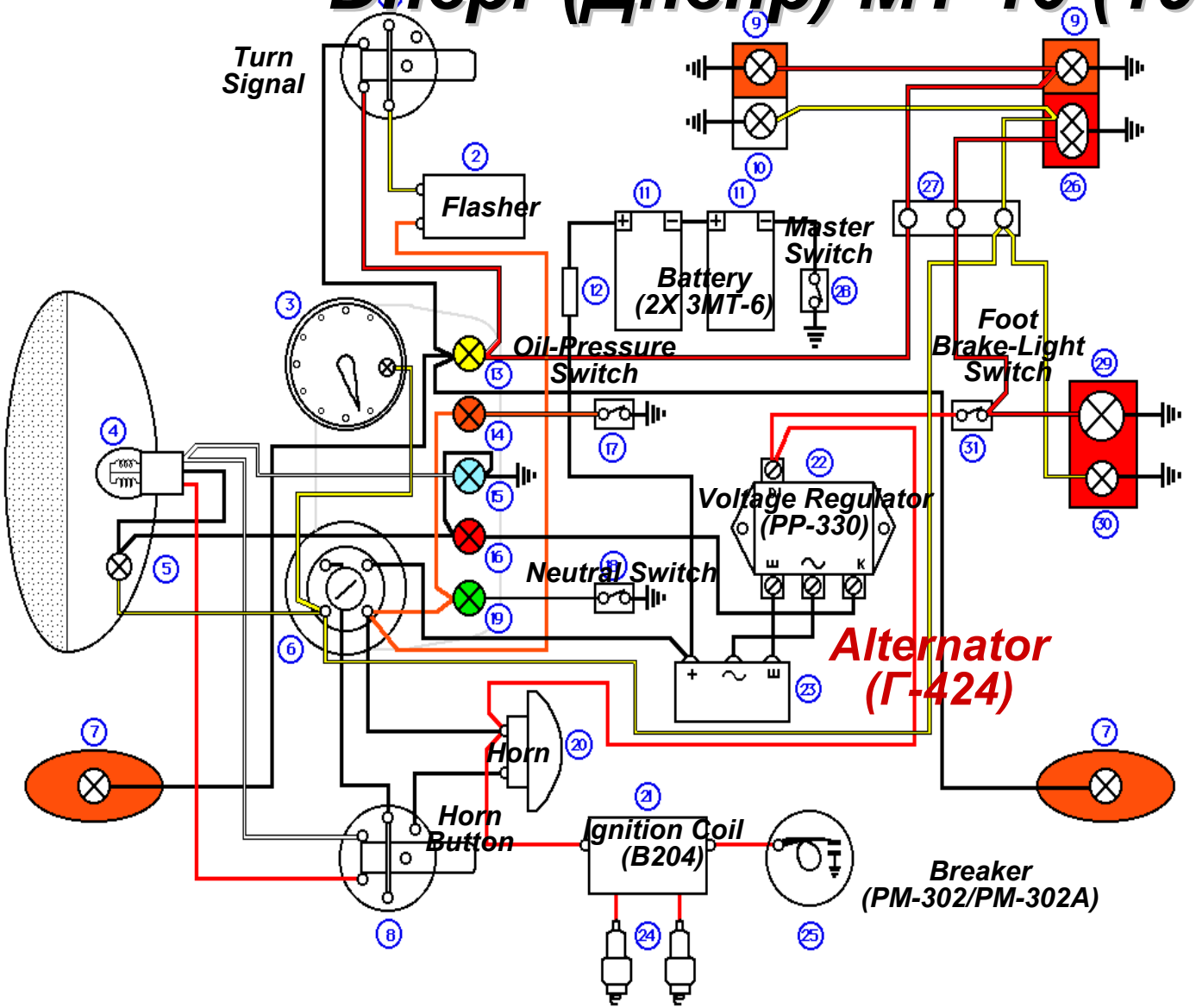


Dnepr (Днепр) MT-10 and MT-10.36

(www.shematic.net/images/pages/MOTO/MT10.jpg)



Dnepr (Днепр) MT-10 (1974)

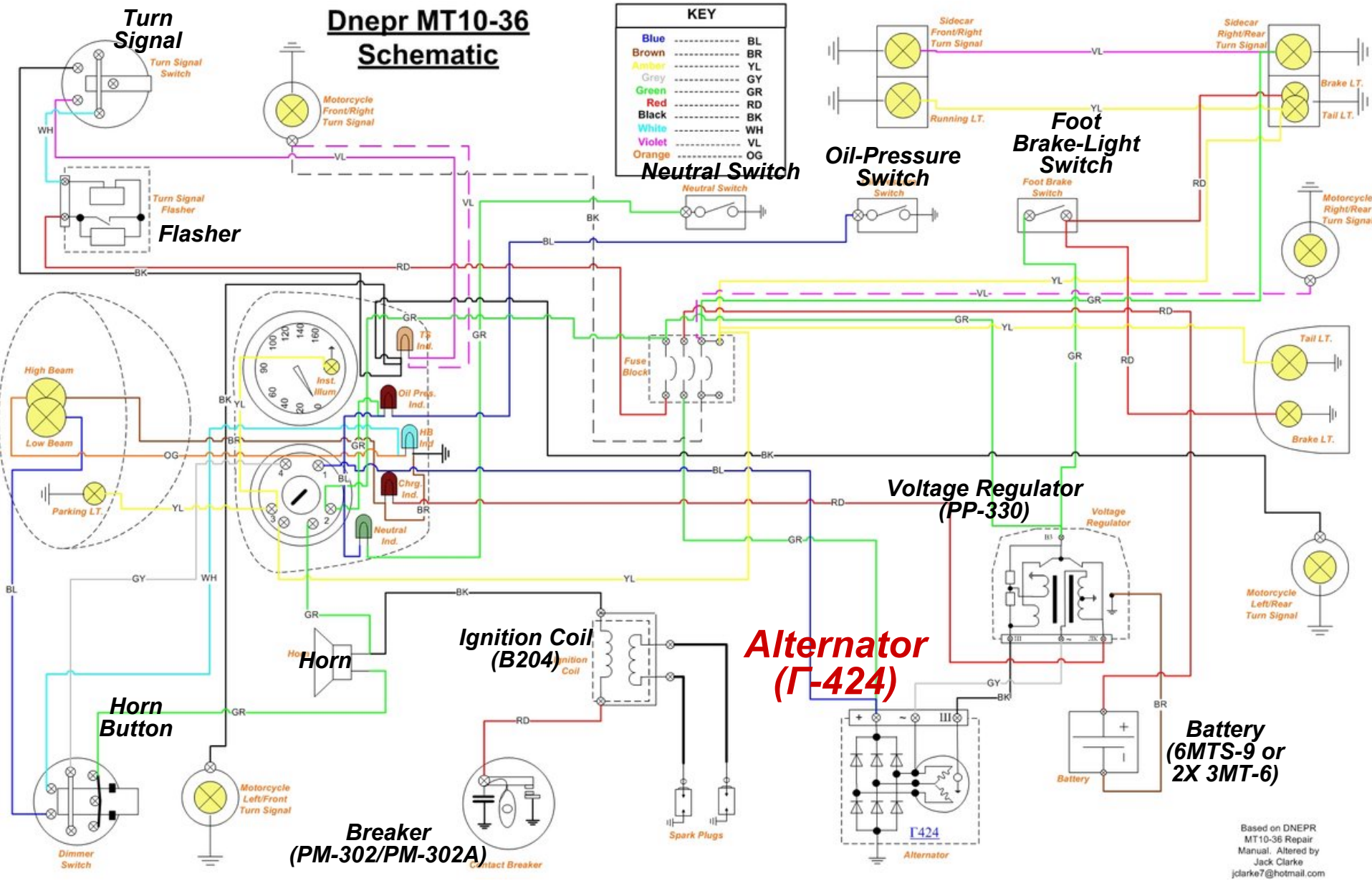


1. Turn Signal Switch
2. Turn Signal Flasher
3. Instrument Illumination
4. Headlight
5. Parking light
6. Ignition Switch
7. Front Left Turn Signal – Bike
8. High Beam Switch
9. Right Turn Signal – Sidecar
10. Front Right Turn Signal – Bike
11. Battery
12. Fuse
13. Turn Signal Indicator
14. Oil Pressure Indicator
15. High Beam Indicator
16. Charge Indicator
17. Oil Pressure Switch
18. Neutral Switch
19. Neutral Indicator
20. Horn
21. Coil
22. Voltage Regulator
23. Generator
24. Sparkplugs
25. Points/Contact Breaker
26. Rear Right Turn Signal – Bike
27. Wire Connector
28. Ground
29. Brake Light
30. Tail Light

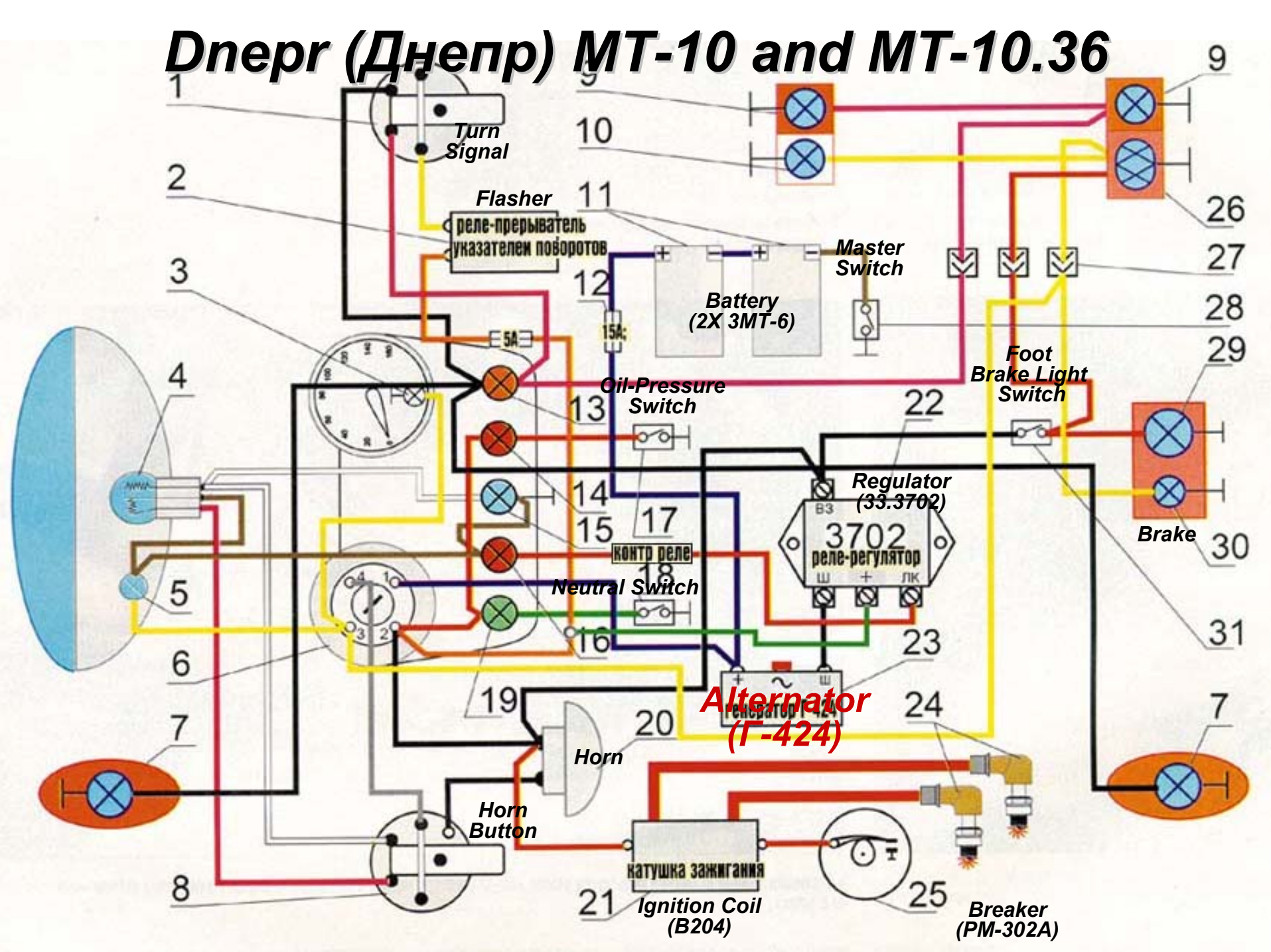
1974 Dniepr MT-10

wykonał:
Carl Allison

Dnepr (Днепр) MT-10.36

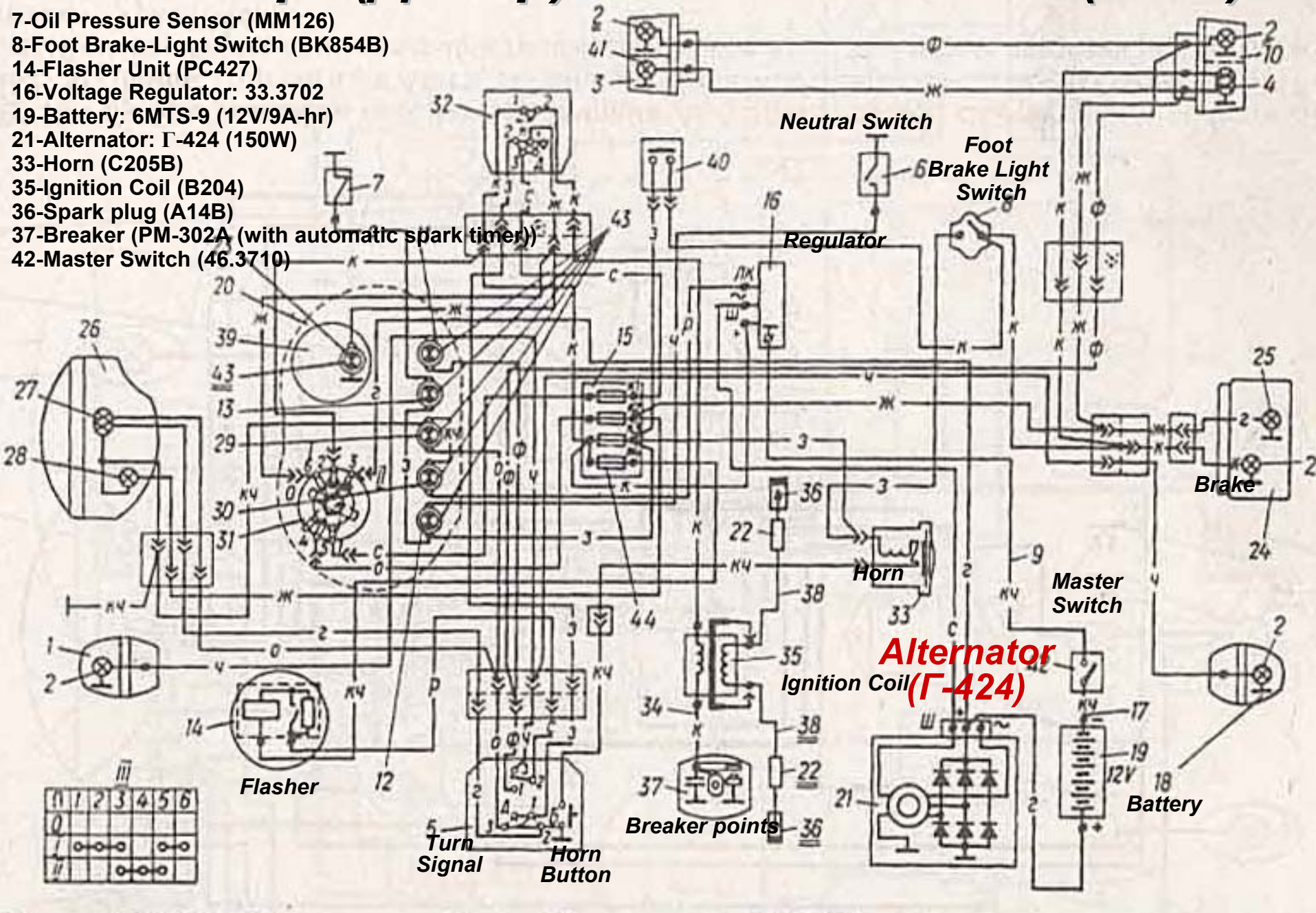


Dnepr (Днепр) MT-10 and MT-10.36



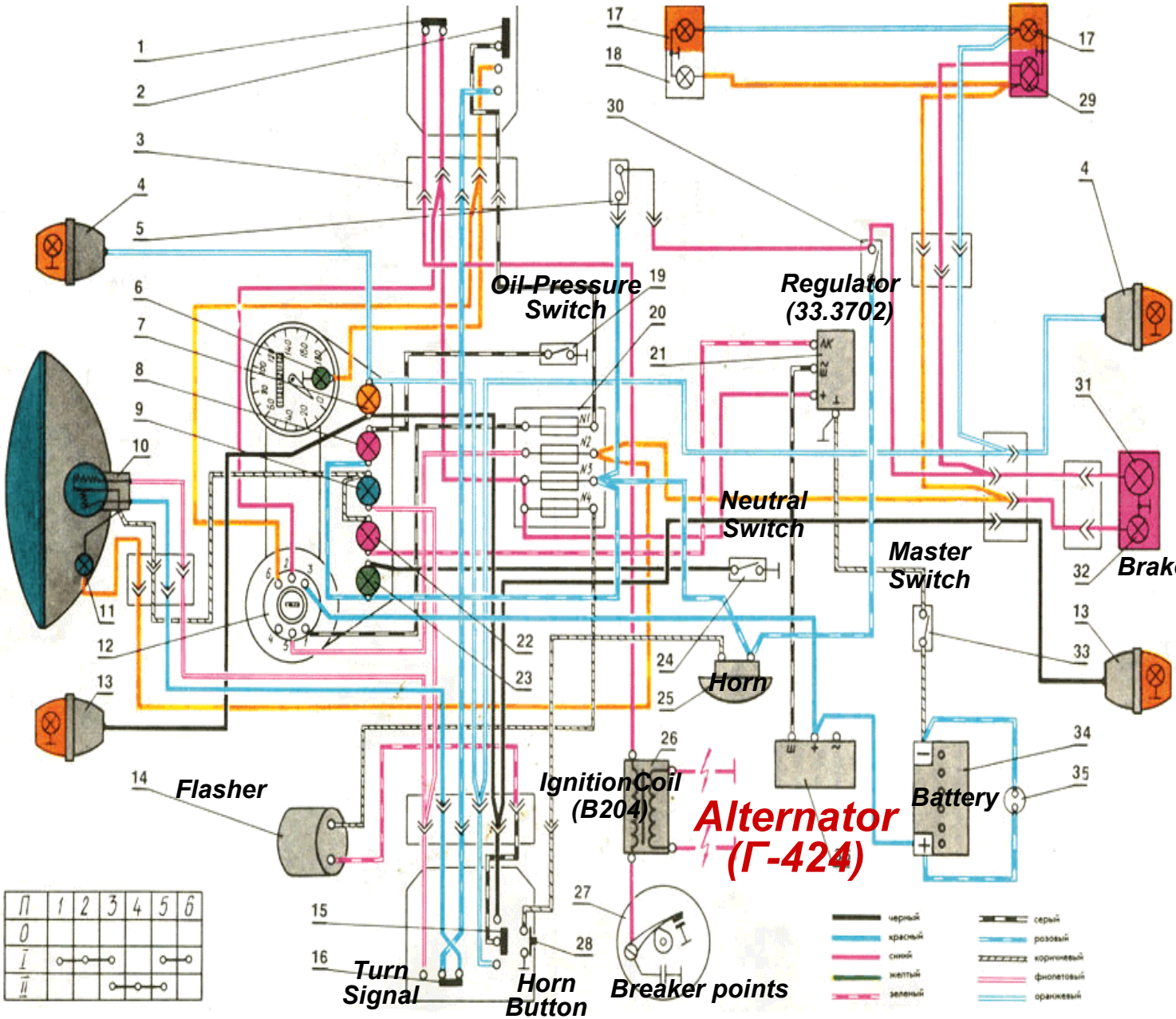
Dnepr (Днепр) MT-11 and MT-16 (1992)

7-Oil Pressure Sensor (MM126)
8-Foot Brake-Light Switch (BK854B)
14-Flasher Unit (PC427)
16-Voltage Regulator: 33.3702
19-Battery: 6MTS-9 (12V/9A-hr)
21-Alternator: Г-424 (150W)
33-Horn (C205B)
35-Ignition Coil (B204)
36-Spark plug (A14B)
37-Breaker (PM-302A (with automatic spark timer))
42-Master Switch (46.3710)

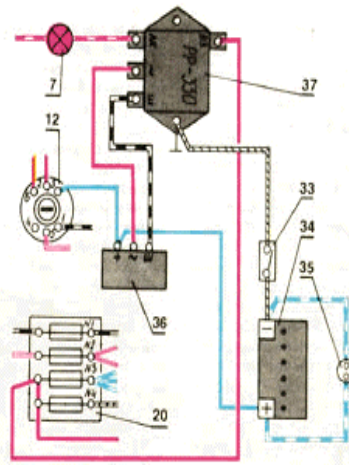


Dnepr (Днепр) MT-11, MT-14 and MT-16

(showing replacement of PP-330 Regulator with the Solid-State 33.3702)



Older Models: PP-330



schemat instalacji do Dniepra MT-11, 14 i 16