Ural (Урал) - Днепр (Днепр)
Russian Motorcycle Generators and Alternators
Part III-2: Г-414 Generator (ГЕНЕРАТОР Г-414)

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

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### 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 the same part.
2. Cannot use Г-424 Alternator with discharged battery or without battery.
3. MB-750 = MW-750, MB-750М = 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.
Alternators have progressed in output voltage and power, From the Г-11 (Г-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-414 (G-414) 6-Volt Generator (1957-1974)

- 6-Volt / 10-Ampere / 65-Watt Generator
- Rotor Speed: 1,350 rpm (6.5-V, 0-A), 1,950 rpm (10-A)
- Used on:
  - Ural: M-62, M-63, M-66
  - Dnepr: K-650, later K-750, K-750M, MB-750, MB-750M, MT-8, MT-9 & MT-12
- Negative-Ground Case
- Works in Conjunction with PP-302 Regulator
Г-414, 6-Volt Generator (Генератор Г-414) 6v / 65w

List Price: 320 rubles
(www.olx.ua)
Generator (Г-414) Specifications

- **Rated Voltage:** 6-Volts
- **Full output current:** 10-Amperes
- **Direction of Armature Rotation (viewed from the drive side):** Right-Hand
- **Rotational Speed of Armature, Ensuring a Voltage of 6.5 V, at Ambient of 20ºC**
  - at zero load: 1350 rpm
  - at full load (10 A): 1950 rpm
- **Idle current (with the generator operating as a motor):** 6-Amps
- **Polarity of the frame (ground):** minus

**Generator Winding Data**

- **Field Coil, Stator (Output)**
  - Wire: copper, enamelled, grade size, PEL brand: 0.74 mm
  - Winding: CCW
  - Number of turns: 300
  - Number of layers: 24
  - Insulation, half-overlapping, one layer of tafieta tape: 0.25 x 15 mm
  - Output terminals Markings: “Я” and “Ш”

- **Generator Armature, Anchor, Rotor (Exciter)**
  - Wire: copper
  - Insulation: two layers of high strength enamel, size: 1.16 mm
  - Number of turns in the section: 5
  - Number of wires in the slot: 20
  - Number of sections: 2
  - Number of slots: 14
  - Number of commutator sheets: 28
  - Slot pitch: 1-7
  - Commutator Sheet Pitch: 1-2

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The Г-414 is a d.c. shunt excitation alternator.
The generator uses the rotor to produce a magnetic field, while the commutator and brushes ensure that the magnetic field is uni-polar, which cuts across the stator winding to produce DC.
Г-414 6-Volt Generator

Rotor

Field Terminal (Ш)

Armature Terminal (Я)
Г-414 Generator for Днепр MT-9, К-750, К-650 and Урал M-62, M-63, and M-66

• Polarity: Negative Ground
• Direction of Rotation (drive side): Right-Hand (clockwise)
• Weight: 3.8 kg
Генератор Г-414

List Price: 150 rubles
(www.olx.ua)
Alternators, with their more-compact rotors, are able to generate current at higher geared speeds, to allow charging even at idle. They are also able to handle higher power in the stator windings, without the limitations and wear of the brushes.
Gamma-414 Generator

1. Pinion Gear
2. Brushes
3. Commutator
4. Brush Spring
5. Bearing Cap
6. Protective Band
Г-414 (G-414) Generator
Flashing the Field of the Generator

- Generator Can Reverse Polarity if You Have a Completely Dead Battery or If You Remove It from the Frame
- To Flash the Field on a Negative Ground System
  - Disconnect the Wires to the Regulator
  - Connect a Ground from the Frame to the Field (Ш)
  - Spark the Armature Terminal (Я) from the Battery +
Γ-414 / G-414 / L-414 6-Volt Dynamo Fix
http://f2mcltd.blogspot.se/2012/02/l414-6-volt-dynamo-fix.html#more

- Only applies to the 6-volt dynamo (generator) fitted to Ural M-63/M-66, Dnepr MT-9 and the side-valves: Γ-414

- At F2 Motorcycles we get emails about the Γ-414 dynamo not working on bikes that have not been used for a while.
  - 99% of the time there is no need to replace it.

- "You might want to try this on your dynamo. As it doesn't work you have nothing to lose. (Flashing the Field)
  Fit it to the bike and leave everything connected as it should be.
  Take a length of spare wire and hold one end on the positive terminal of the battery.
  Tap the other end on the backwards facing “R” terminal on the dynamo.
  You will get a flash of sparks each time you tap the terminal.
  Do this three or four times.
  You may then find that the dynamo works.
  The semi-permanent magnet in the dynamo looses the magnetic quality over time.
  This procedure re-magnetises it.
  It often fixes dynamos that have not been used for a while."

I usually get an email back again saying "thanks, it worked perfectly"
So all I can say is, don't rush out and buy a new dynamo before trying this
Dnepr (Днепр) K-750, K-750M and MT-12

- Generator (Г-414)
- Battery (3MT-6 or 3MT-7)
- Foot Brake-Light Switch
- Hi/Lo Beam Switch
- Manual Spark Advance
- Breaker/Distributor (PM-05)
- Horn
- Flasher Unit
- Turn Signal
- Ignition Coil (B2B)
Dnepr (Днепр) Early K-650
with PM-05 Breaker/Distributor and B2B Ignition Coil

7&8-Oil Pressure Sensor (MM-106) and Emergency Light
15- Spark Plug (Candle) (A8)
16-Interrupter/Distributor (PM-05)
18-Horn (C37A)
22-Foot Brake-Light Switch (BK854)
23-Regulator (PP-31A)
24- Generator (Γ-414)
25-Battery (3MT-12)
27-Horn Button
29-Dimmer Switch

Generator (Γ-414)
Dnepr (Днепр) K-750, K-750M and MT-12

Hi/Lo Beam Switch

1. Headlamp/Dash
2. High and low beam
3. Parking light
4. Fuse
5. Key
6. Dimmer switch
7.
8. Generator charge indicator
9. Mechanical dimmer switch lever
10. Primary switch
11. Horn button
12. Speedometer bulb
13.
14. Condenser
15. Spark plugs A8Y
16. Points and distributor
17. Front side car fender light
18. Ignition coil
19. DC Generator
20. Battery
21. Horn
22. Regulator
23. Connector
24. Stop light switch
25. Rear side car fender light
26. Rear light

Breaker/Distributor (PM-05)

Generator (Г-414)

Battery
Dnepr (Днепр) Later K-750
(with Breaker PM-11A, PP-302 and B201 for Automatic Control of Firing Angle)
**Dnepr (Днепр) Early K-650 and MT-9**

with PM-05 Breaker/Distributor and B2B Ignition Coil

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2. High and low beam bulb A6-32 + 32
3. Parking light bulb A6-2
4. Fuse
5. Key
6. Dimmer switch
7. Oil pressure indicator A6-1
8. Generator charge indicator lamp A6-0.25
9. Mechanical dimmer switch lever
10. Primary switch
11. Horn button
12. Speedometer bulb
13. Oil pressure switch
15. Spark plugs A8Y
16. Points and distributor
17. Front side car fender light
18. Ignition coil
19. DC Generator
20. Battery 3-MT-12
21. Horn C37A
22. Regulator
23. Connector
24. Stop light switch BK854
25. Rear side car fender light
26. Rear light

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**1968 K-650, Dniepr MT-9**

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wykonalo: Carl Allison
Dnepr (Днепр) Later K-750 and K-750M

- G-414 Generator
- PM-302 Regulator
- B2B Coil
- PM-05 Breaker
- 3MT-6 Battery

- Hi/Lo Beam Switch
- Breaker/Distributor (PM-05)
- Generator (Г-414) Regulator (PP-302)
- Ignition Coil (B2B)
- Battery
- Horn (C-37)
Dnepr (Днепр) Later K-650 / MT-8 and MT-9 with PP-302 Regulator PM-302 Breaker and B201 Ignition Coil

- Turn Signal
- Generator (Г-414)
- Oil Pressure Sensor
- Battery (3MT-12)
- Voltage Regulator (PP-302)
- Foot Brake-Light Switch
- Flasher
- Horn
- Ignition Coil (B201)
- Breaker (PM-302/PM-302A)
Dnepr (Днепр) Later K-650

- G-414 Generator
- PP-302 Regulator
- B201 Coil
- PM-302 Breaker
- 3MT-12 Battery

- Ignition Coil (B201)
- Breaker (PM-302/PM-302AA)
- Horn
- Generator (Г-414)
- Battery
- Voltage Regulator (PP-302)
Dnepr (Днепр) MT-9

- Generator (Г-414)
- Oil Pressure Sensor (MM-106A)
- Regulator (PP-302)
- Ignition Coil (В2Б)
Dnepr (Днепр) MB-750, MT-12 (1961)

- Generator (Г-414)
- Voltage Regulator (PP-302)
- Battery
- Ignition Coil (B2B)
- Distributor/Breaker (PM-05)
- Horn

G-414 Generator
PP-302 Regulator
B2B Coil
PM-05 Breaker
3MT-12 Battery
Dнепр (Днепр) МТ-12

Generator (Г-414)
Ural (Урал) M-62, M-63 and M-66

- Regulator (PP-302/PP-302A)
- Battery (3MT-6 or 3MT-12)
- Generator (Г-414)
- Oil Pressure Sensor
- Ignition Coil (B201)
- Breaker Points (PM-302)
- Hi/Lo Beam Switch
- Flasher Unit
- Horn
- Turn Signal (if No sidecar)
- Foot Brake-Light Switch
- Motorcycle Tail-Light
- Sidecar Tail-Light
- 7. Turn Signal (if No sidecar)
- Sidecar Position Light
- 18. Turn Signal

2. Turn Signal
7. Turn Signal
8. Turn Signal
17. Turn Signal