Ural and Dnepr Generators and Alternators Part I: Introduction

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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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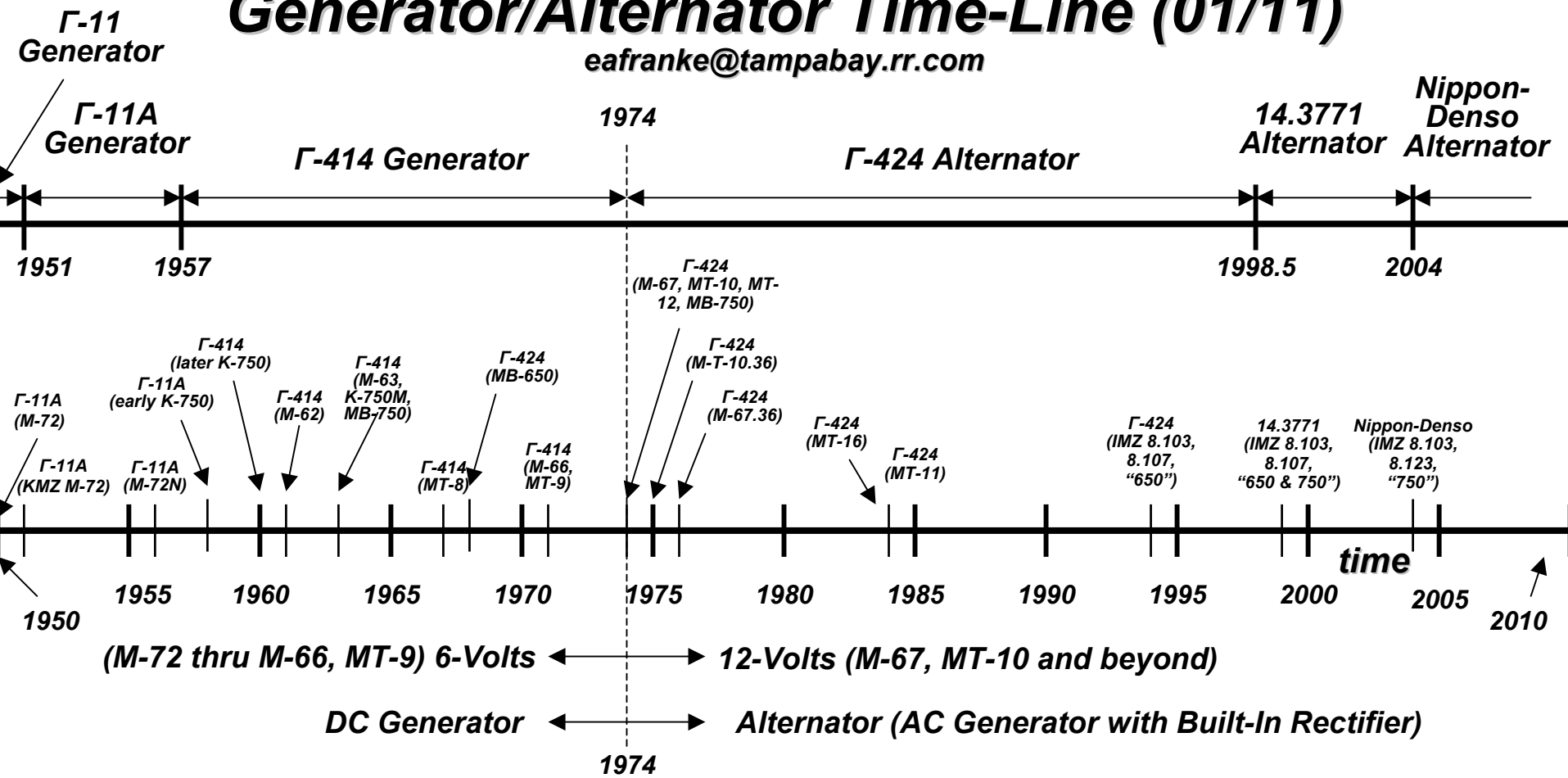
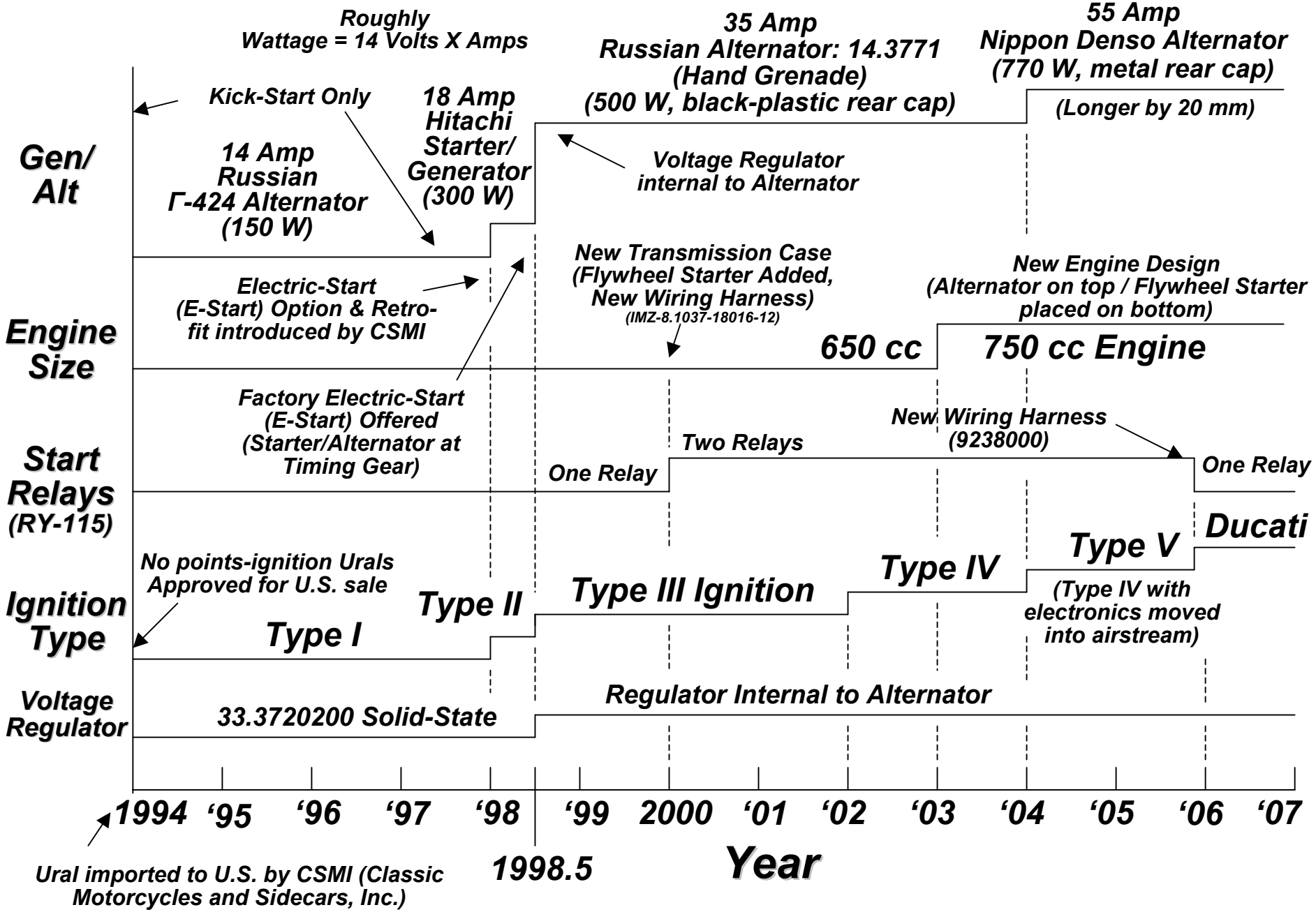


Alternators have progressed in output voltage and power, From the Г-11 (G-11) generator of 6-Volts/45-Watts in 1941, the Г-11А in 1952, the Г-414 6V/65 W in 1957, the Г-424 of 12V/150W in 1974, the 14.3771 of 12V/500W in 1998.5, to the present-day Nippon-Denso alternator of 12-V/770W.

Recent Ural Starter/Generator/Alternator Time-line (01/11)



Generator vs. Alternator (01/11)

- Generators
  - Magnetic Field formed by Stator (fixed magnetic field)
  - Windings of Wire (armature) Spin inside Magnetic Field
  - Generates DC on Rotor using Split Commutator
  - Brushes Carry Large Output Current
- Alternators
  - Magnetic Field formed by Rotor (rotating magnetic field)
  - Generates AC on Stator and Rectifies to Produce DC
  - Brushes Carry Steady Low-Current to Rotating Magnetic Field
  - Large Output Current from 3-Ø Stator (fixed) Winding
  - Smaller Rotor May Be Rotated at Higher RPM's
- Comparison of Generators versus Alternators
  - Generators Don't Tend to Charge at Low RPM's (idle)
  - Alternators Are Lighter and More-Compact
  - Alternator Not Designed to Charge a Dead Battery
    - Doing so May Burn It Up!
  - Generators Require Cleaning of the Commutator Every 5-kms

Thus we see that the older units (Γ-11/11A and Γ-414) were DC generators, while modern units (Γ-424, 14.3771 and the Nippon-Denso) are all alternators (AC generators with rectifiers).