

Evolution of Russian Motorcycles Ural (Урал) and Dnepr (Днепр) Part I: Parade of Russian Sidecar Motorcycles

***(See Also Part II: Engine Evolution, Part III: Alternator and Generator Evolution,
Part IV: Ignition System Evolution, and Part V: Carburetor Evolution)***

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Identifying Year and Model of Russian Motorcycle Sidecars

- **Because the Vast Majority of Older M-, K- and MT- Models on the Market Have Been Rebuilt from Various Parts, It Is Difficult to Identify a Motorcycle by cursory Inspection; i.e., Late Model Dneprs Are Often Retro-fitted with M-72 Fuel Tanks, Solo Saddle Seats, or Early Headlight/Ignition Shells; but Are Obvious Differences on Closer Inspection**
- **Many of the Photos on the Internet Give the Wrong Year of Manufacture**
 - **Many Times the Motorcycle May Be Listed Simply as a M-72**
 - **May Later State Actual Model; i.e. M-66, K-750, MB-750, etc**
 - **M-67.36 Often Listed as M-67, and MT-10.36 as MT-10**
- **Need to Examine:**
 - **General Evolution: See Russian Motorcycle Evolution, Parts I thru V**
 - **Engines: See Russian Motorcycle Engines, Parts I thru IV**
 - **Ignition Systems: See Russian Motorcycle Ignition Systems, Parts I thru VII**
 - **Generators/Alternators: See Ural and Dnepr Gen / Alt, Parts I thru V**
 - **Voltage Regulators: See Russian Motorcycle Volt Regulators, Parts I thru VI**
 - **Electric Starters: See Electric Starter, Parts I thru IV**
 - **Carburetors: See Russian Motorcycle Carburetors, Parts I thru XXI**
 - **Fuel Tanks, Side Cushions: See Russian Motorcycle Fuel Tanks, Parts I thru IV**
 - **Drive Trains, Locking and Non-Locking Differentials: See Drive Trains, Parts I thru VII**
 - **Turn Signals: See Russian Motorcycle Flasher Directional Lights**
 - **Electric Signal Horns: See Russian Motorcycle Horns, Parts I and II**
 - **Exhaust Mufflers: See Russian Motorcycle Mufflers, Parts I thru V**
 - **Steering Column Locks: See Russian Motorcycle Steering Locks**
 - **Brake Lights and Switches: See Russian Motorcycle Brake Lights and Switches**
 - **Neutral-Gear Sensors / Switches: See Neutral Indicating Switch**
 - **Oil-Pressure Sensor Switches: See Emergency Oil-Pressure Sensor Switch**
 - **Speedometer / Odometers: See Russian Motorcycle Speedometers, Part I and II**
 - **Swing-Arms: See Russian Plungers, Swing-Arms and Torsion Bars, Parts I thru V**
 - **Headlight Assemblies: See Russian Headlight Cavities, Parts I thru XII**
 - **Non-Headlight Light Assemblies: See Russian Non-Headlight Light Assemblies**

**It's a heap of work to grind thru the amount of information
on Russian motorcycles.**

Identifying Year and Model of Sidecars (cont.)

- **Specialty Sidecar Motorcycles**
 - **Police:** See Russian Police Motorcycle, Parts I thru VII
 - **Fire:** See Russian Fire-Fighting Motorcycles
- **Dates of Manufacture May Vary Between Motorcycle With or W/O Sidecar (SC)**
 - **Ural**
 - M-62 (Ural-1) w/o SC: 1964, M-62 with SC: 1962-65
 - M-63 (Ural-2) w/o SC: 1965, M-63 with SC: 1965-80 (Cont. as Police Version, M-63P)
 - M-66 (Ural-3) w/o SC: 1973-81, M-66 with SC: 1973-75
 - M-67 w/o SC: 1973-78, M-67 with SC: 1973-84
 - M-67.36 w/o SC: 1980-96, M-67.36 with SC: 1979-92
 - **Dnepr:**
 - M-72 w/o SC: 1959, M-72 with SC: 1956-59
 - K-750 w/o SC: 1958-67, K-750 with SC: 1959-70 (includes K-750M)
 - MT-9 w/o SC: 1969-76, MT-9 with SC: 1971-76
 - MT-10 w/o SC: 1973-82, MT-10 with SC: 1975-88 (includes MT-10.36)
 - MT-11 w/o SC: 1986-93, MT-11 with SC: 1982-92
- **Basic Changes**
 - **Irbitskiy Mototsikletniy Zavod (Irbit, Russian Factory for IMZ-Ural)**
 - Early Frames (thru M-62) Were One-Piece with Rear Plunger-Type Suspension
 - Later Frames (M-63 forward) Have Swing-Arm Outside the Rear Frame
 - Large Engine Timing Covers Span Full Vertical Height of Engine
 - Rocker (Valve) Covers Are Rounded, Oval-Shaped with Three Raised Lines
 - Early Wheel Hubs are "Bottlecap" Style Pressed Steel with Different Sized Spokes
 - **Kievskiy Mototsikletniy Zavod (Kiev, Ukraine Factory for KMZ-Dnepr)**
 - Frames (starting with K-750) Feature Swing-Arm Mounted inside the Frame
 - Small Engine Timing Covers Only Span Upper Half of Engine
 - Rocker Covers Are Rectangular-Shaped with Five Raised Lines
 - Wheel Hubs Are Round, Cast-Aluminum with Straight Spokes and No Indentations

Dates and model numbers can easily differ based on when the sidecar version went into production.

Ferreting Out Data on Old Russian Bikes

- ***It Takes a Bit of Courage to Post Information***
- ***You Are Subject to “Helpful” Advice***
 - ***It Helps If Offered in the Right Spirit***
 - ***A Few Rules***
 - ***Take Advice from the Old Farts***
 - ***They’ve Been Around the Block a Few Times***
 - ***Trust the Old Manuals and Schematics First***
 - ***Trust the Illustrated Parts Diagrams Next***
 - ***Trust the Component Dealers Labels Next***
 - ***These Are Good for Commonality and Later Re-Fitting***
 - ***Trust the Bikes Ads Last***
 - ***Folks Have a Devil of a Time Figuring Out What Model or Year of Bike They Own***
 - ***Folks Purchase Bikes That Have Been “Restored” Something Less than Original***
 - ***Reasons for Differing Views***
 - ***Ivan Took a Break for Some Refreshments***
 - ***He Ran Out of One Particular Parts and Had a Few Old Parts Lying Around***
 - ***Ivan Wanted to Get the Improved Parts into the Hands of the Customers***
 - ***Replica Parts Made for Maximum Replacement***
 - ***I Replaced an Electric Starter on My 2003 Patrol. The Replacement Starter Fit Like a Glove. Life was Good, until I Noticed that the Starter Was about an Inch Longer than the Original. The Starter Lever Couldn’t Move More than ¼ Range, Due to Slicing the Starter. No Problem for Their Major Customer (Russian Outboard Motors)***
- ***Transliteration***
 - ***“B” Is the Transliteration of the Russian “V”: K-750B = K-750V***
 - ***“MB” Is the Transliteration of the Russian “CF”: MB-650 = CF-650***
 - ***“MB” Is the Transliteration of the Russian “MV”: MB-750 = MV-750***
 - ***“H” Is the Transliteration of the Russian “N”: M-72H = M-72N***

It takes a lot of courage and hard work to grind thru the amount of information available on Russian motorcycles.

Model Identification

(www.uralmotorbikes.info/model_identification.htm)

- **Side Valve (SV) Distinguished by Flat-Sided Cylinder Head with Two Pieces; Barrel and Cylinder Head**
- **Overhead Valve (OHV) Distinguished by Wider Engine with Three Pieces; Barrel, Cylinder Head and Rocker Cover**
- **Ural OHV Engines Come in Two Sizes: 650cc and 750cc**
 - **Earlier 650cc Engines Have Cast Iron Barrel Bolted Directly to Crankcase with Studs on Barrel to Mount the Aluminum Head, with Oval Rocker Cover with Push-Fit Down-Pipes**
 - **Later 750cc Engines Have Aluminum Barrel Mounted to Aluminum Head with Shaped Rocker Cover with Push-Fit Down-Pipes Studs Pass-Thru Barrel and Head**
- **Dnepr 650cc OHV Engines Have Aluminum Barrel Mounted to Aluminum Head with Rectangular Rocker Cover, with Mounting Studs Visible thru Barrel Fins**
 - **Exhaust Has a Screw-On Mounting Fin Fitting**



Apart from the external differences, Dneprs run shell bearings and Urals use roller bearings.

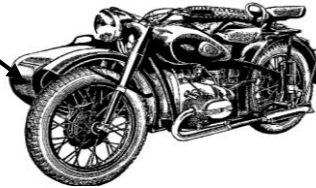
Ural (Урал) Sidecar Evolution



M-72 (750cc)
1941-1956



M-72M (750cc)
1956-1960



M-61 (650cc)
1957-1963



M-62 (650cc)
1961-1965



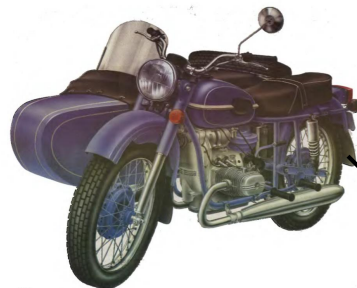
M-63 (650cc)
1963-1980



M-66 (650cc)
1968-1977



M-67 (650cc)
1972-1977



M-67.36 (650cc)
1973-1984



IMZ-8.103 (Ural 650)
1984-2002

Dnepr (Днепр) Motorcycle Sidecar Evolution

M-72 (750cc)
1949-1956



K-750 (750cc)
1959-1964



M-72N (H) (750cc)
1956-1959



K-750M (750cc)
1963-1977



K-650/MT-8 (650cc)
1967-1971



K-750/MT-9 (650cc)
1971-1974



MB-750 (750cc) 2WD
1964-1973



MB-750M (750cc) 2WD
1973-1977



MT-12 (750cc) 2WD
1974-1982



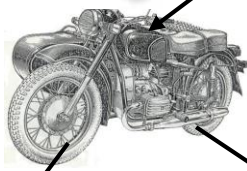
MT-12 (750cc) 1WD
1982-1985



MT-10 (650cc)
1975-1984



MT-10.36 (650cc)
1984-1988



MB-650 (650cc) 2WD
1971-1973



MB-650M (650cc) 2WD
1973-1984



MB-650M1 (650cc) 2WD
1985-1995



MT-11 (650cc)
1985-1995



MT-16 (650cc) 2WD
1985-1995

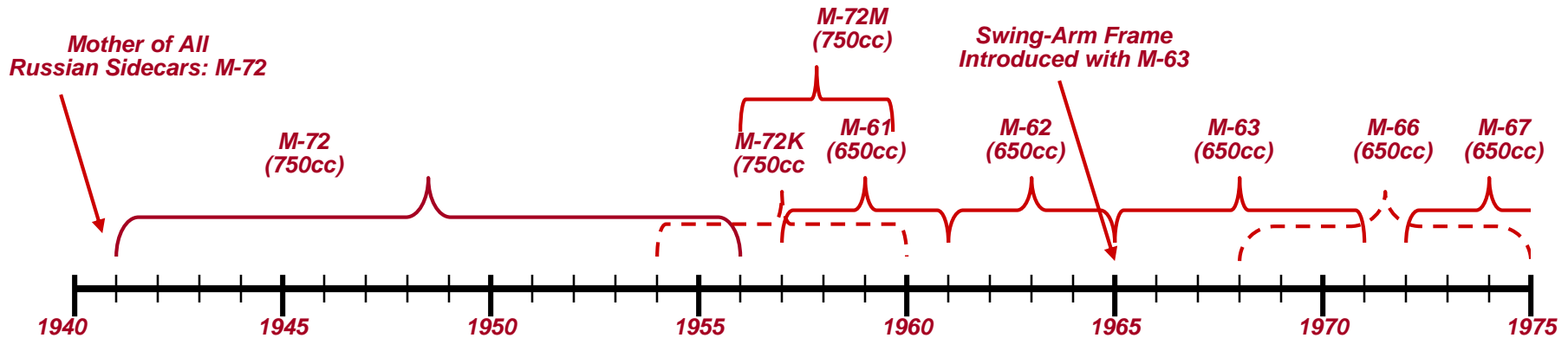


Ural (Урал) and Dnepr (Днепр) Russian Heavy Motorcycles with Sidecars

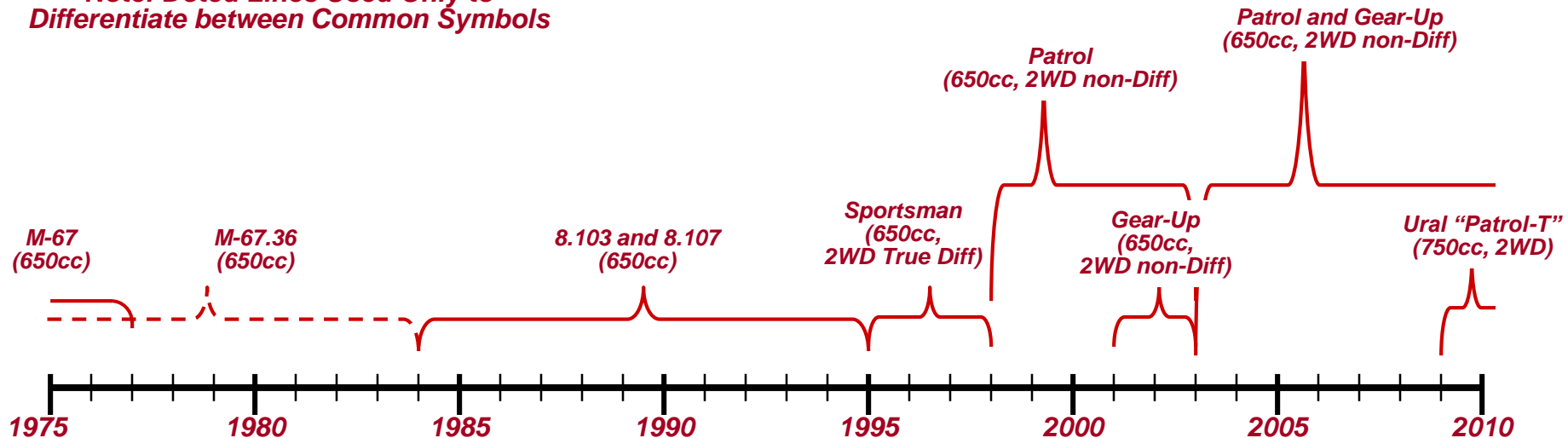
Mfgr	Model	Year	Military / Civilian	Engine Size (cm ³ / inch ³)	Engine (Hp/ kW)	Front Fork	Rear Suspension	Carbs	Generator/ Alternator	# Made
Ural (Урал) IMZ	M-72 (1WD)	1941-56	Military	746 / 45.3 SV	22 / 16	Telescopic	Plunger	K-37	Г-11/Г-11, 6V	9,799
	M-72K (1WD)	1954-60	Civilian	746 / 45.3 SV	27 / 20	Telescopic	Plunger	K-37A	Magneto	
	M-72M (1WD)	1956-60	Military	746 / 45.3 SV	22 / 16	Telescopic	Plunger	K-37A	Г-11A, 6V	
	M-61 (1WD)	1957-61	Civilian	649 / 39.4 OHV	28 / 21	Telescopic	Plunger	K-37A/ K-38	Г-11A, 6V	
	M-62 (Ural-1) (1WD)	1961-63	Civilian	649 / 39.4 OHV	28 / 21	Telescopic	Plunger	K-38	Г-414, 6V	
	M-63 (Ural-2) (1WD)	1963-80	Civilian	649 / 39.4 OHV	28 / 21	Telescopic	Swing Arm	K-301Г	Г-414, 6V	
	M-66 (Ural-3) (1WD)	1968-75	Civilian	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-301Б	Г-414, 6V	
	M-67 (1WD)	1972-77	Civilian	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-301Г	Г-424 , 12V	
	M-67.36 (1WD)	1976-84	Civilian	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	K-301Г	Г-424 , 12V	
	8.103 (1WD) "650" Series	1984-02	Civilian	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	K-302	Г-424 , 12V	
	Sportsman IMZ 8.107 (2WD)	1995-98	Civilian	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	28mm Mikuni	Hitachi, 12V	
	8.1037 (1 & 2WD) "750" Series	2003-Present	Civilian	745 / 45.2 OHV	41 / 29	Telescopic	Swing Arm	Keihin	14.3771/ Nippon-Denso	
Dnepr (Днепр) KMZ	M-72 (1WD)	1951-1956	Military	746 / 45.3 SV	22 / 16	Telescopic	Plunger	K-37A	Г-11, 6V	20,630
	M-72N (H) (1WD)	1956-1959	Military	746 / 45.3 SV	22 / 16	Leading Link	Plunger	K-37A	Г-11A, 6V	6,000
	K-750 (1WD)	1958-1963	Military	746 / 45.3 SV	26 / 19	Leading Link	Swing Arm	K-37A	Г-11A, 6V	101,126
	K-750B (1WD)	1963-1965	Military	746 / 45.3 SV	26 / 19					
	K-750M (2WD)	1965-1977	Military	746 / 45.3 SV	26 / 19	Telescopic	Swing Arm	K-302	Г-414, 6V	
	MB-750 (2WD)	1964-1973	Military	746 / 45.3 SV	26 / 19	Telescopic	Swing Arm	K-37A/ K-302	Г-414, 6V	
	MB-750M (2WD)	1973-1977	Military	746 / 45.9 SV	26 / 19	Telescopic	Swing Arm	K-302	Г-414, 6V	
	K-650/MT-8 (1WD)	1967-1970	Civilian	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-301Б	Г-414, 6V	36,963
	K-650/MT-9 (1WD)	1971-1974	Civilian	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-301Б	Г-414, 6V	189,463
	MT-10 (1WD)	1974-1976	Civilian	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-301Б	Г-424 , 12V	30,000
	MT-10.36 (1WD)	1975-1987	Civilian	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	K-301Д	Г-424 , 12V	678,991
	MB-650 (2WD)	1976-1984	Military	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-301Б	Г-424 , 12V	
	MB-650M (2WD)	1985-1991	Military	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	K-301Д	Г-424 , 12V	
	MB-650-M1 (2WD)	1991-2005	Military	649 / 39.4 OHV	32 / 24	Telescopic	Swing Arm	K-65	Г-424 , 12V	
	MT-12 (1WD/2WD)	1974-1984	Civilian	746 / 45.3 SV	26 / 19	Telescopic	Swing Arm	K-302	Г-414, 6V	
	MT-11 (Dnepr-11) (1WD)	1985-1995	Civilian	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	K-302/ K-63T	Г-424 , 12V	15,188
	MT-16 (Dnepr-16) (2WD)	1986-1995	Civilian	649 / 39.4 OHV	36 / 27	Telescopic	Swing Arm	K-63T	Г-424 , 12V	

Leading Link Fork: a front suspension specifically for sidecar operation. The newer leading link (LL) is not generally suitable for solo use.
Notes: "Sportsman" IMZ 8.107: Full-Time 2WD with non-Locking Differential, 8.103 & 8.107 "650" and "750" Series: Full-Time 1WD with Engageable 2WD (No Diff), MT-12 (Dnepr-12): Full-Time 2WD with Non-Locking Diff, MB-750 and MB-750M: Full-Time 2WD with Locking (Engageable) Diff, MB-650 and MB-650M: Full-Time 2WD with Non-Locking Diff, MT-16 (Dnepr-16): Full-Time 2WD with Non-Locking Diff

Russian Sidecar Motorcycle Development (Ural)

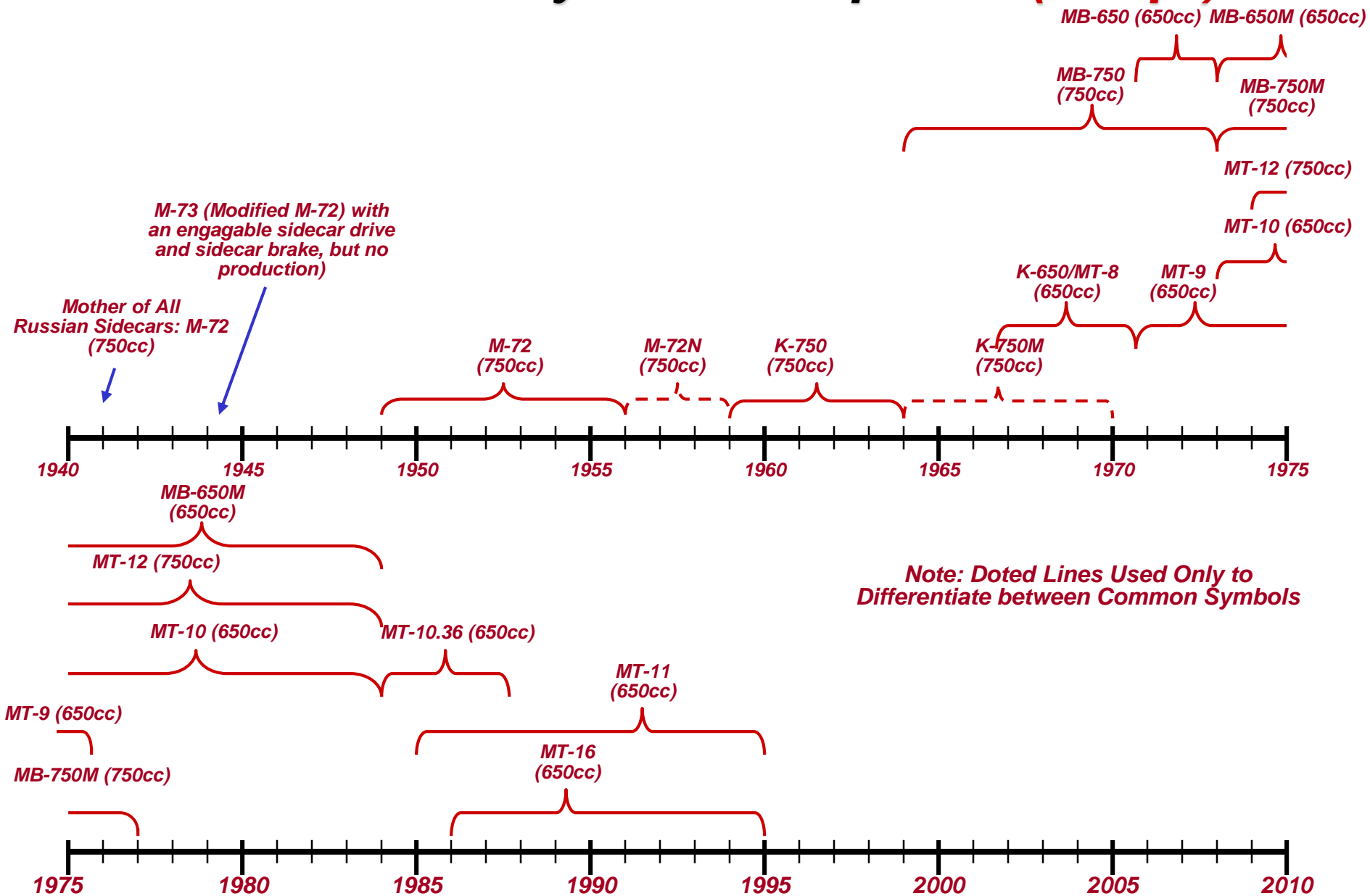


Note: Doted Lines Used Only to Differentiate between Common Symbols



The basic sidecar design started with the M-72, a copy of the German R71. The swing-arm frame was introduced on the M-63 to improve performance over country roads.

Russian Motorcycle Development (*Dnepr*)



Dnepr paralleled Ural's sidecar development.

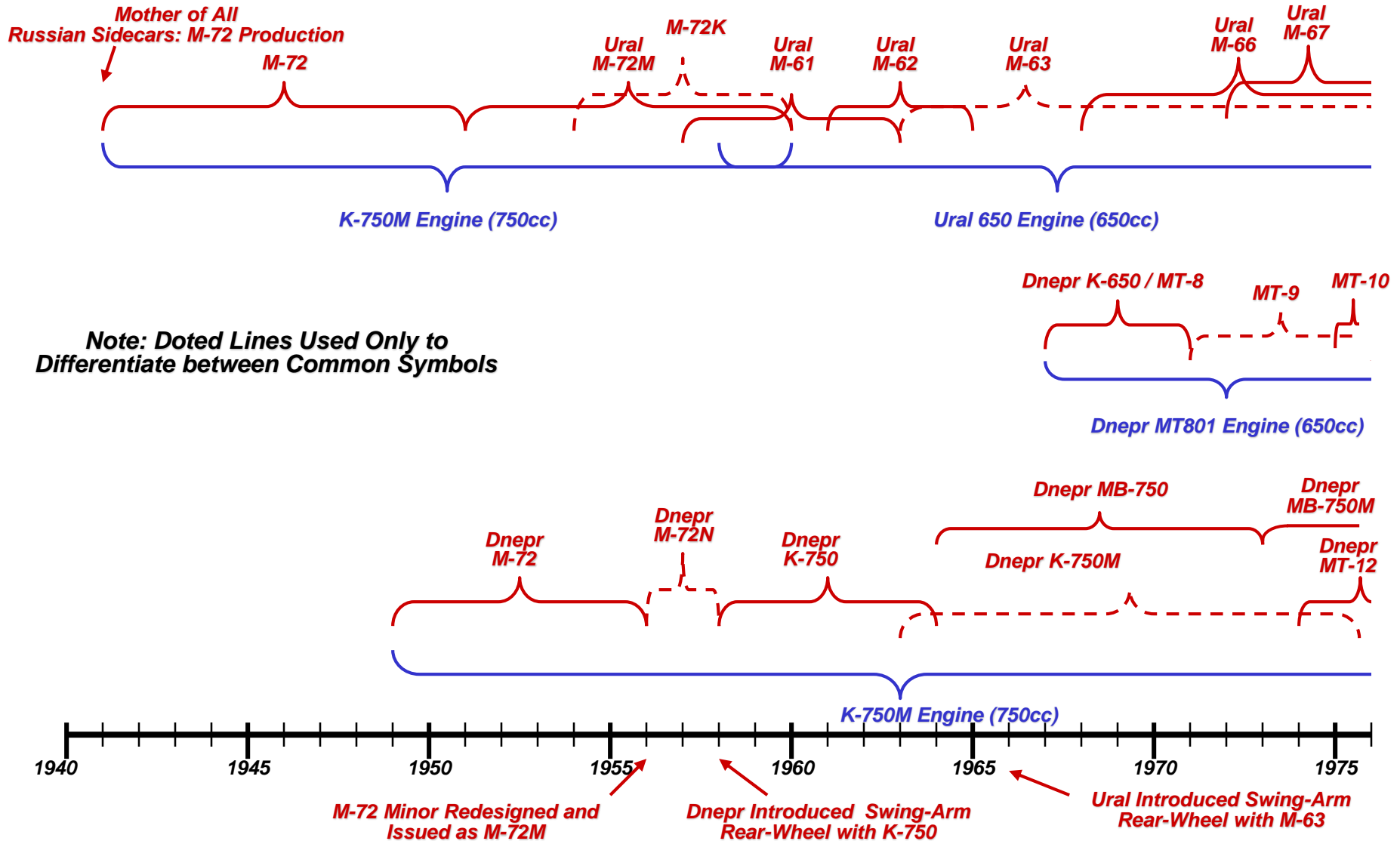
Sorting thru Ural / Dnepr Engine Types

- **All Heavy-Class "Dnepr" and "Ural" Engines Have Same Structural Schemes**
 - **Two-Cylinder, Four-Stroke, Carburetor, Air-Cooled**
 - **Opposed Cylinders in Horizontal Plane (Boxer Engine)**
 - **Provides High Balancing for Crank-and-Rod Mechanism**
 - **Good Air-Cooling of Engine**
- **Ural / Dnepr Engines Separate into Seven Different Types**
 - **1: M-72 / K-750 Side Valve (SV) Engine**
 - **Derivative of BMW R71**
 - **Original M-72 SV 750cc Engine**
 - **2: K-750M SV Engine: Dnepr K-750, K-750M, MT-12, MB-750, MB-750M**
 - **Connecting Rods Mounted on Roller Bearings, Cast Iron Cylinders**
 - **Intake and Exhaust Valves Are Smaller in Diameter**
 - **Low-pressure Lubrication System with Full-Flow, Paper Oil Filter**
 - **Oil Pump Rotated by Camshaft**
 - **Gases from Crankcase Pushed Directly to the Atmosphere thru Breather**
 - **3: MT801 Engine: Dnepr K-650/MT-8, MT-9, MT-10, MB-650 Motorcycles**
 - **First Over-Head Valve (OHV) Design, 650cc Displacement, 32 Horsepower**
 - **First Introduced with K-650 / MT-8, Later Upgraded with MT9 Engine**
 - **Replaced Manual Breaker Distributor PM-05 with PM-302 Automatic Ignition**
 - **Cast Ductile Iron Crankshaft with Removable Connecting Rods and Replaceable Bearing Inserts**
 - **Forced Lubrication System with Centrifugal Oil Cleaner**
 - **Engine Reliability, Durability and Repair**
 - **Replaced Roller Bearings Connecting Rod Journal Bearings (Bi-metallic Liners) and Use of Solid Cast Iron Crankshaft**
 - **Bimetallic Cylinder (Aluminum and Iron Sleeve) Substantially Reduced Wear Compared to Previous One-Piece, Cast-Iron Piston to Ensure Performance during Long Rides in Heavy Traffic**

Sorting thru Ural / Dnepr Engine Types

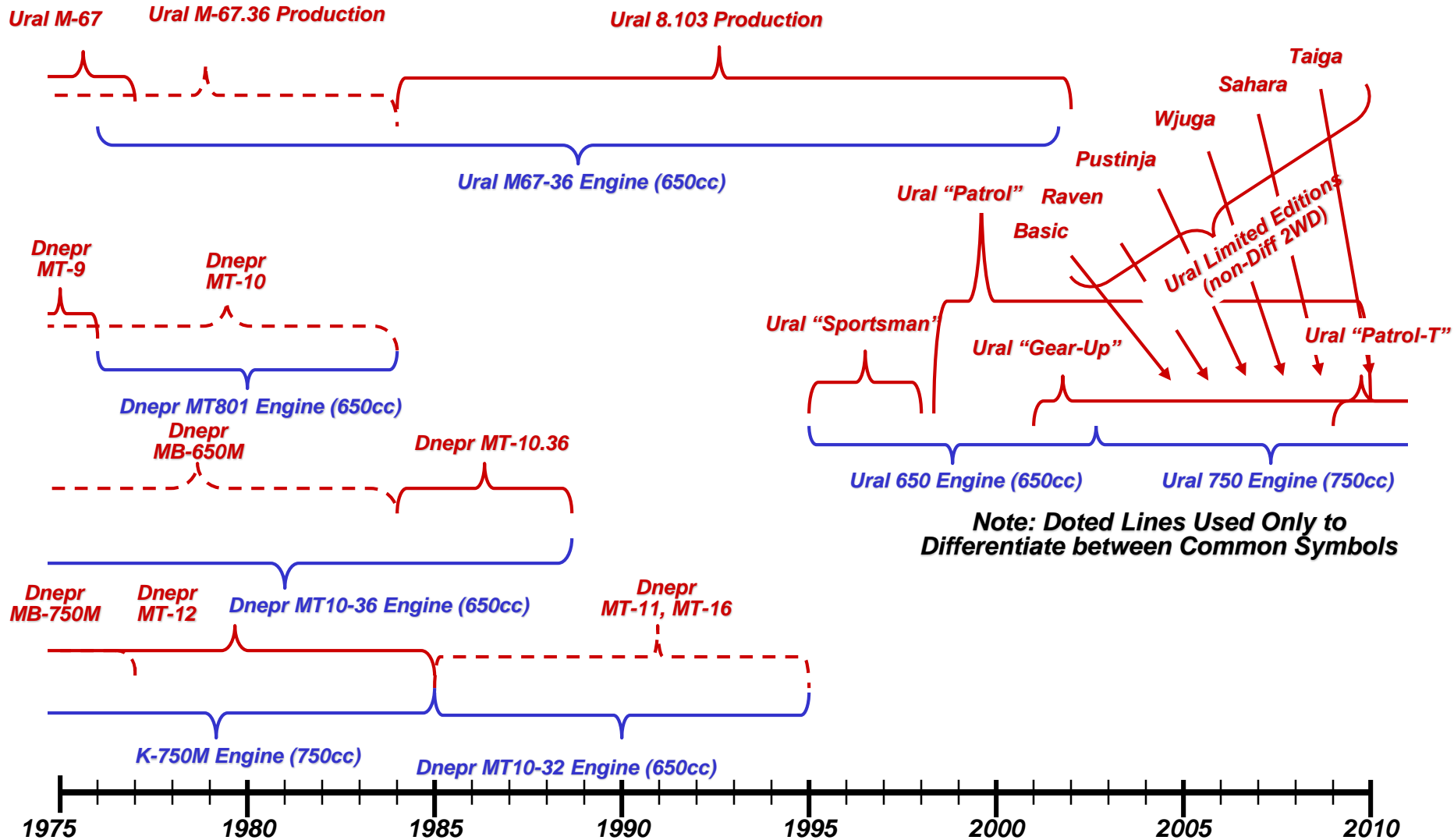
- 4: MT10-36 OHV Engine: Dnepr MB-650M, MT-10.36 Motorcycles**
 - **Modified MT801: Increased Capability to 36 HP (26.5 kW)**
 - **Increased Intake Valve Diameter from 37 to 40 mm**
 - **New Camshaft Profile**
 - **Increased Compression Ratio from 7.0:1 to 7.5:1 (A-72 and A-76 Petrol)**
 - **Export Engine to Run on High-Octane A-93 with Compression Ratio of 8.5:1**
 - **Increased Max Performance to 5600 - 5800 rpm**
 - **Modified Form of Deepening a Valve at Bottom of Piston**
 - **Since November 1978, Produced Piston Sphere Radius Head 72.5mm**
 - **Used on MT-10.36, MB-650M, and Some MT-16's**
- 5: MT10-32 OHV Engine: Dnepr MT-11, MT-16 Motorcycles**
 - **Modified MT10-36 for Higher Torque at Lower Speeds, Lower Power: 32HP**
 - **Maximum Speed Lowered by 700 rpm**
 - **Modified Camshaft with New Profile**
- 6: M67-36 Engine: Ural MT-67.36, Series “650” Motorcycles**
 - **Significant Differences from MT10-32 Engine**
 - **One-Piece Crankshaft Construction and Removed Only by Means of Special Devices**
- 7: Ural 750 cc OHV Engine: Ural Patrol, Gear-Up**
- **Use of Valve Covers, Cylinder Heads, Carburetors, Generators/Alternators and Ignition to Verify Engine Types**

Russian Sidecar Motorcycle Engine Evolution



Starting with the M-72, a copy of the German R71, heavy Russian motorcycle production has steadily advanced under IMZ (Ural) and KMZ (Dnepr).

Russian Sidecar Motorcycle Engine Evolution



Dnepr dropped out of heavy Russian motorcycle production in 1992¹⁴ after an outstanding program of military and civilian models.

Ural (Урал) / Dnepr (Днепр) Sidecar Motorcycle Engines

Ural (Урал) Model	Production	Engine (ccm³)	HP / kW	RPM for Max HP	Compression Ratio	Torque (Nm)	RPM for Torque	Engine Type
M-72	1941-1956	746 SV	22 / 16	4400-4600	5.5±0.2	39	2800-3500	M-72
M-72K	1954-1960	746 SV	27 / 20	5000	5.5±0.2	39	2800-3500	M-72
M-72M	1956-1960	746 SV	22 / 16	4600	5.5±0.2	39	2800-3500	M-72
M-61	1957-1963	649 OHV	28 / 21	4800-5200	6.2	45	3000-3500	Ural 650
M-62 (Ural-1)	1961-1965	649 OHV	28 / 21	4800-5200	6.2	45	3000-3500	Ural 650
M-63 (Ural-2)	1963-1980	649 OHV	28 / 21	4800-5200	6.5±0.2	47	4200-4800	Ural 650
M-66 (Ural-3)	1968-1977	649 OHV	32 / 24	5000-5200	7.0±0.2	47	4200	Ural 650
M-67 (IMZ-8.101)	1972-1977	649 OHV	32 / 24	5000-5200	7.0±0.2	47	4200	Ural 650
M-67.36	1973-1984	649 OHV	36 / 27	4600-4900	7.0±0.2	45	4200	M67-36
8.103 Series “650”	1984-2002	649 OHV	36 / 27	5000-5200	7.0, 8.1, etc.	47	3600	M67-36
“750”Series	2003-Present	745 OHV	41 / 29	5600	8.6±0.2	52	4600	Ural 750

Dnepr (Днепр) Model	Production	Engine (ccm³)	HP / kW	RPM for Max HP	Compression Ratio	Torque (Nm)	RPM for Torque	Engine Type
M-72	1949-1956	746 SV	22 / 16	4600	5.5±0.2	39	2800-3500	M-72
M-72N	1956-1959	746 SV	22 / 16	4600	5.5±0.2	39	2800-3500	M-72
K-750	1959-1964	746 SV	26 / 19	4600-4800	6.0+0.1/-0.3	42	2800-3500	K-750M
K-750M	1964-1970	746 SV	26 / 19	4600-4800	6.0+0.1/-0.3	42	2800-3500	K-750M
MB-750	1964-1973	746 SV	26 / 19	4600-4800	6.0+0.1/-0.3	42	2800-3500	K-750M
MB-750M	1973-1977	746 SV	26 / 19	4600-4800	6.0+0.1/-0.3	42	2800-3500	K-750M
MT-12 (Dnepr-12)	1974-1985	746 SV	26 / 19	4600-4800	6.0+0.1/-0.3	42	2800-3500	K-750M
K-650/MT-8	1967-1971	649 OHV	32 / 24	4800-5200	7.0+0.1/-0.2	42	4900-5200	MT801
K-650/MT-9	1971-1976	649 OHV	32 / 24	4800-5200	7.0+0.1/-0.2	42	4900-5200	MT801
MT-10	1975-1984	649 OHV	32 / 24	4800-5200	7.0+0.1/-0.2	42	4900-5200	MT801
MB-650	1971-1973	649 OHV	32 / 24	4800-5200	7.0+0.1/-0.2	42	4900-5200	MT801
MT-10.36	1984-1988	649 OHV	36 / 27	5300-5800	7.5	47	4800-5300	MT10-36
MB-650M	1973-1984	649 OHV	36 / 27	5300-5800	7.5	47	4800-5300	MT10-36
MT-11 (Dnepr-11)	1985-1995	649 OHV	32 / 24	4500-5300	7.0	50	4000-4500	5 MT10-32
MT-16 (Dnepr-16)	1985-1995	649 OHV	32 / 24	4500-5300	7.0	50	4000-4500	MT10-32 /36

Differing Electrical Schematics on the Same Model

- ***Within the Same Model (such as within a M-72 or within a MT-12), There Can Be Several Different Schematics for the Same Model (Early/Later), depending on;***
 - ***Ignition System on Dnepr K-750 or on MT-12, Ural M-62 or on M-63***
 - ***Manual Spark Advance on Early Version: PM-05/PM-11***
 - ***Automatic Spark Advance on Later Versions: PM-302***
 - ***Alternator Upgrade on a Ural “650” or “750” Series***
 - ***Hitachi 18-Amp (’98)***
 - ***Russian Hand-Grenade (14.3771) 35-Amp (’98-1/2)***
 - ***Nippon Denso 55-Amp (’04)***
 - ***Voltage Regulator***
 - ***Mechanical-to-Later Mechanical on Dnepr MT-12, MT-16 or on Ural M-62***
 - ***PP-31/PP-31A (’50/’56)***
 - ***PP-302/PP-302A (’63)***
 - ***Mechanical-to-Solid-State on Dnepr MB-750M, MT-11, MT-16 or on Ural MT-63, 8.103 “650” Series***
 - ***PP-330 (’63) Mechanical***
 - ***33.3702 (’92) Solid-State***
 - ***Brake Lights***
 - ***No Brake Lights on Early Russian Bikes***
 - ***Original M-72’s and early K-750’s***
 - ***Rear Foot-Pedal Brake-Switch***
 - ***Started in Late 1950’s with M-72M’s and later K-750’s***
 - ***Directional Turn Signals***
 - ***Early M-61, M-62: No Directional Signals***
 - ***Later M-61, M-62: Directional Signals and PC419 Flasher Unit***
 - ***Ignition Coil Upgrade***
 - ***Improved Model on a Ural M-72: From KM-01 to B2B (B2B)***

IMZ (ИМЗ) - Ural (Урал) Model/Year vs. Electrical System

Model	Year	Engine Size	Voltage	Generator/ Alternator	Regulator	Ignition Coil	Breaker/ Distributor	Battery
M-72	1941-56	750cc	6-Volt	G-11, G-11A (1952)	PP-1, PP-31 (1950)	KM-01, B2B, IG-4085B (1950)	PM-05	3MT-7 (7A-hr) or 3MT-14 (14A-hr)
M-72M	1956-60	750cc	6-Volt	G-11A (1952)	PP-31A	KM-01	PM-05	
M-72K	1954-60	750cc	6-Volt	*Magneto*	None	-	PM-05	None
M-61	1957-63	650cc	6-Volt	G-11A (1952)	PP-30, PP-31A (1956)	B11, KM-01	PM-05	3MT-12 (12A-hrs)
M-62	1961-65	650cc	6-Volt	G-414 (1957)	PP-31	B2B (1963)	PM-05	3MT-6 (6A-hrs) or 3MT-12 (12A-hrs)
					PP-302, PP-302A	B201, B201A	PM-302, PM-302A	
M-63 (Ural-2)	1963-80	650cc	6-Volt	G-414 (1957)	PP-302 (1963), PP-302A	B2B (1963)	PM-11A	
						B201, B201A	PM-302, PM-302A	
M-66 (Ural-3)	1968-75	650cc	6-Volt	G-414 (1957)	PP-302 (1963), PP-302A	B201, B201A	PM-302, PM-302A	
M-67	1972-77	650cc	12-Volt	G-424 (1974)	PP-302A, PP-330	B204	PM-302, PM-302A	6MTS-9 (9A-hrs) or 2X 3MT-6 (2X 6A-hrs)
M-67.36	1973-84	650cc	12-Volt	G-424 (1974)	PP-330, 33.3702 (1992)	B204	PM-302, PM-302A	
8.103 and 8.107 Series “650”	1984-02	650cc	12-Volt	G-424 (1974)	PP-330, 33.3702 (1992)	B204	PM-302A (1982)	6MTS-9 or 6CT-18-36A (18-to-36A-hrs)
						BC3 (BZ3) Contact-less Ignition System Type I (1994), II (1997), III (1998)		
8.103,8.103X, 8.123,8.123X 650 & 750 Series	1999- 2003	750cc	12-Volt	14.3771 (1998)	Internal to Alternator (YA212A11E)	Contact-less Ignition System Type IV (2002)		Varta YB18L
8.103,8.103X, 8.123,8.123X “750”Series	2004- present	750cc	12-Volt	Nippon Denso (2004)	Internal to Alternator	Type V (2004) Ducati (2006), Power Arc		6MTS-18, Interstate FAYTX-20HL

Notes:

- M-64 (1961) and M-65 (1965) were prototypes.
- Alternators progress in output voltage and power from Г-11 (G-11) generator of 6-Volts/45-Watts in 1941, Г-11A of 6 V/45 W in 1952, Г-414 6V/65 W in 1957, Г-424 of 12V/150W in 1974, 14.3771 of 12V/350W in 1998.5, to the present-day Nippon-Denso alternator of 12V/770W.
- M-73 (1976) was an M-72 (750cc) with engageable sidecar wheel.
- M-75 (1943) was experimental model with 500cc engine (6-Volt) on M-72 frame. M-76 (1947) was experimental (820cc).
- Г-424 alternator (150 Watts) has external relay/regulator (PP-302 or PP-330). 14.3771 and Nippon Denso alternators have internal regulators.
- 12-Volt ignition coil B2B (manual spark advance) paired with PM-05 distributor, B201/B201A (ignition coil for automatic spark advance) paired with PM-302/PM-302A. B2B and B201 coils for 6-Volts and B204 for 12-Volts.
- PP-1, PP-30, PP-31 reverse-relay/voltage regulator for generator G-11/-11A systems were replaced with PP-302/-302A voltage regulator for G-414, and finally P-330 for the G-424 alternator.
- 33.3702 Solid-State Voltage Regulator replaced the PP-330 in 1992.

KMZ (KM3) - Dnepr (Днепр) Model/Year vs. Electrical System

Model	Year	Engine Size	Voltage	Generator/ Alternator	Regulator	Ignition Coil	Breaker/ Distributor	Battery
M-72	1949-56	750cc	6-Volt	G-11A (1952)	PP-31 (1950)	KM-01, B-2B	PM-05	3MT-7 (7A-hr) or 3MT-14 (14A-hr)
M-72N (H)	1956-59	750cc	6-Volt	G-11A (1952)	PP-31A (1956)	KM-01	PM-05	
K-750	1959-63	750cc	6-Volt	G-11A (1952)	PP-31A (1956)	IG-4085	PM-05, PM-11A	3MT-7, -10, -14
	1963-64			G-414 (1957)	PP-302 (1963)	B2B (1963), B201	PM-302	3MT-12 or -14
K-750M	1963-77	750cc	6-Volt	G-414 (1957)	PP-302 (1963)	B2B (1963)	PM-05	3MT-6
						B201	PM-302	
MT-12 (Dnepr-12)	1974-82 2WD 1982-85 1WD	750cc	6-Volt	G-414 (1957)	PP-302 (1963), PP-302A	B2B (1963)	PM-05	3MT-12
						B201	PM-302	
MB-750	1964-73	750cc	6-Volt	G-414 (1957)	PP-302 (1963)	B2B (1963)	PM-05	3MT-12
						B201	PM-301/PM-302	
MB-750M	1973-77	750cc	6-Volt	G-414 (1957)	PP-302 (1963), 33.3702 (1992)	B2B (1963)	PM-05	
						B201	PM-302	
K-650/MT-8	1967-71	650cc	6-Volt	G-414 (1957)	PP-302 (1963), PP-302A	B2B	PM-05, PM-11A	3MT-12
						B201	PM-302	
K-650/MT-9	1971-76	650cc	6-Volt	G-414 (1957)	PP-302 (1963), PP-302A	B2B	PM-05	3MT-6 or 3MT-12
						B201A	PM-302	
MB-650	1971-73	650cc	12-Volt	G-424 (1974)	PP-330	B204	PM-302, PM-302A(1982)	6MTS-9 or 2X 3MT-6
MB-650M1	1985-95	650cc	12-Volt	G-424 (1974)	PP-330	B204	PM-302A	
MT-10	1975-84	650cc	12-Volt	G-424 (1974)	PP-330	B204	PM-302, PM-302A (1982)	
MT-10.36	1984-88	650cc	12-Volt	G-424 (1974)	PP-330	B204	PM-302A (1982)	
MT-11 (Dnepr-11)	1985-95	650cc	12-Volt	G-424 (1974)	PP-330, 33.3702 (1992)	B204	PM-302A (1982)	
MT-16 (Dnepr-16)	1985-95	650cc	12-Volt	G-424 (1974)	PP-30, PP-31, PP-330, 33.3702 (1992)	B201, B204	PM-302, PM-302A (1982)	6MTS-9 (9A-hr)

Notes:

- MT-14 (1977) was a prototype.
- MB-650 is military version of MT-16 and MB-750 is a military version of the MT-12
- Alternators progress in output voltage and power from Г-11 (G-11) generator of 6-Volts/45-Watts in 1941, Г-11A of 6 V/45 W in 1952, Г-414 6V/65 W in 1957, Г-424 of 12V/150W in 1974, 14.3771 of 12V/350W in 1998.5, to the present-day Nippon-Denso alternator of 12V/770W.
- MT-11 and MT-16 remained in production until 1991 when they were re-named the Dnipro-11 (Dnepr-11) and Dnipro-16 (Dnepr-16).
- Model #'s: H = N, MW = MB = MV
- 33.3702 Solid-State Voltage Regulator replaced the PP-330 in 1992.
- Г-424 alternator (150 Watts) has external relay/regulator (PP-302 or PP-330). 14.3771(350 Watts) alternator has internal regulator.
- 12-Volt ignition coil B2B (manual spark advance) paired with PM-05 distributor, B201/B201A (ignition coil for automatic spark advance) paired with PM-302/PM-302A. B2B and B201 coils for 6-Volts and B204 for 12-Volts.

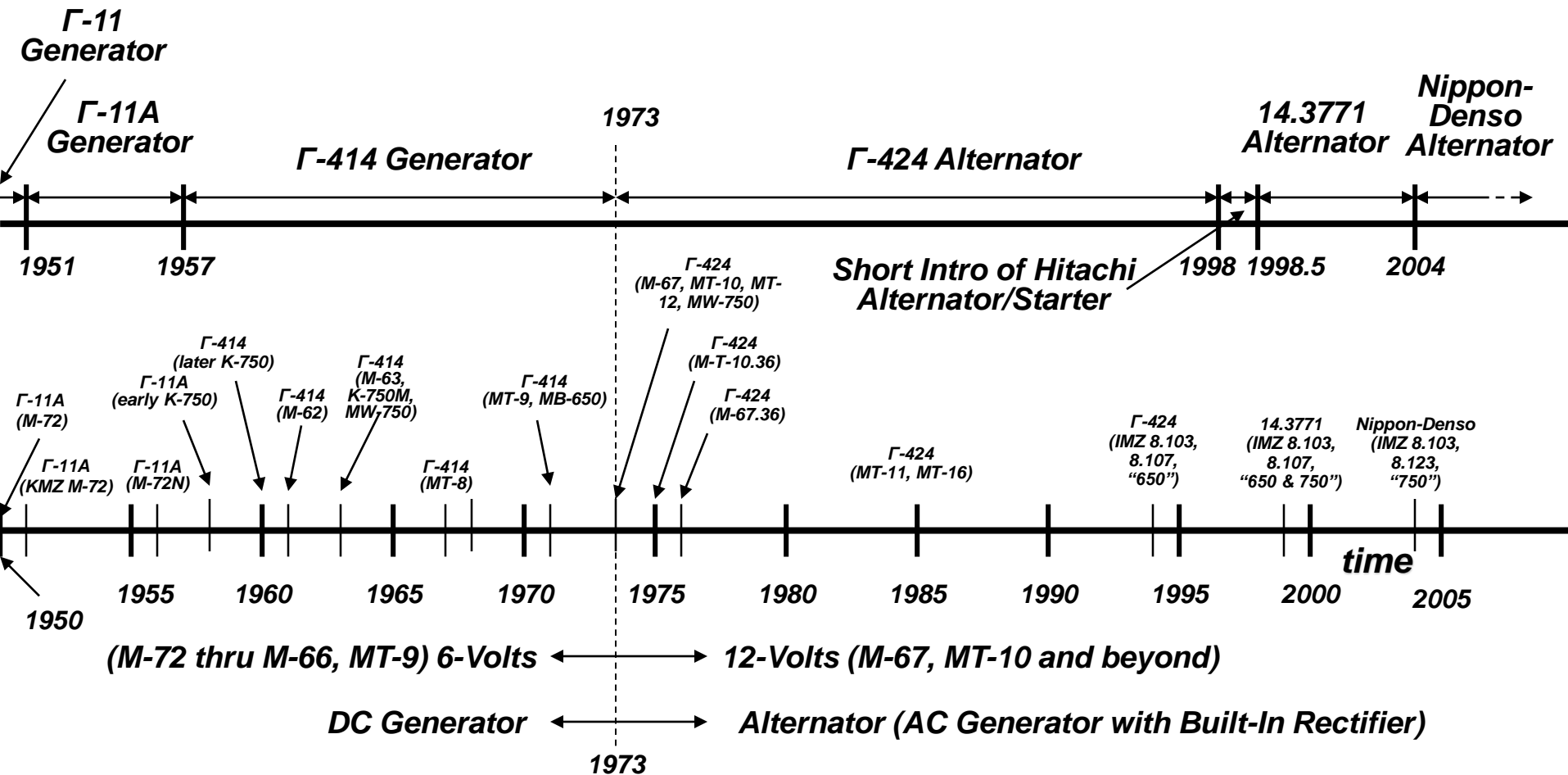
Generators / Alternators for Ural (Урал) and Dnepr (Днепр)

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:

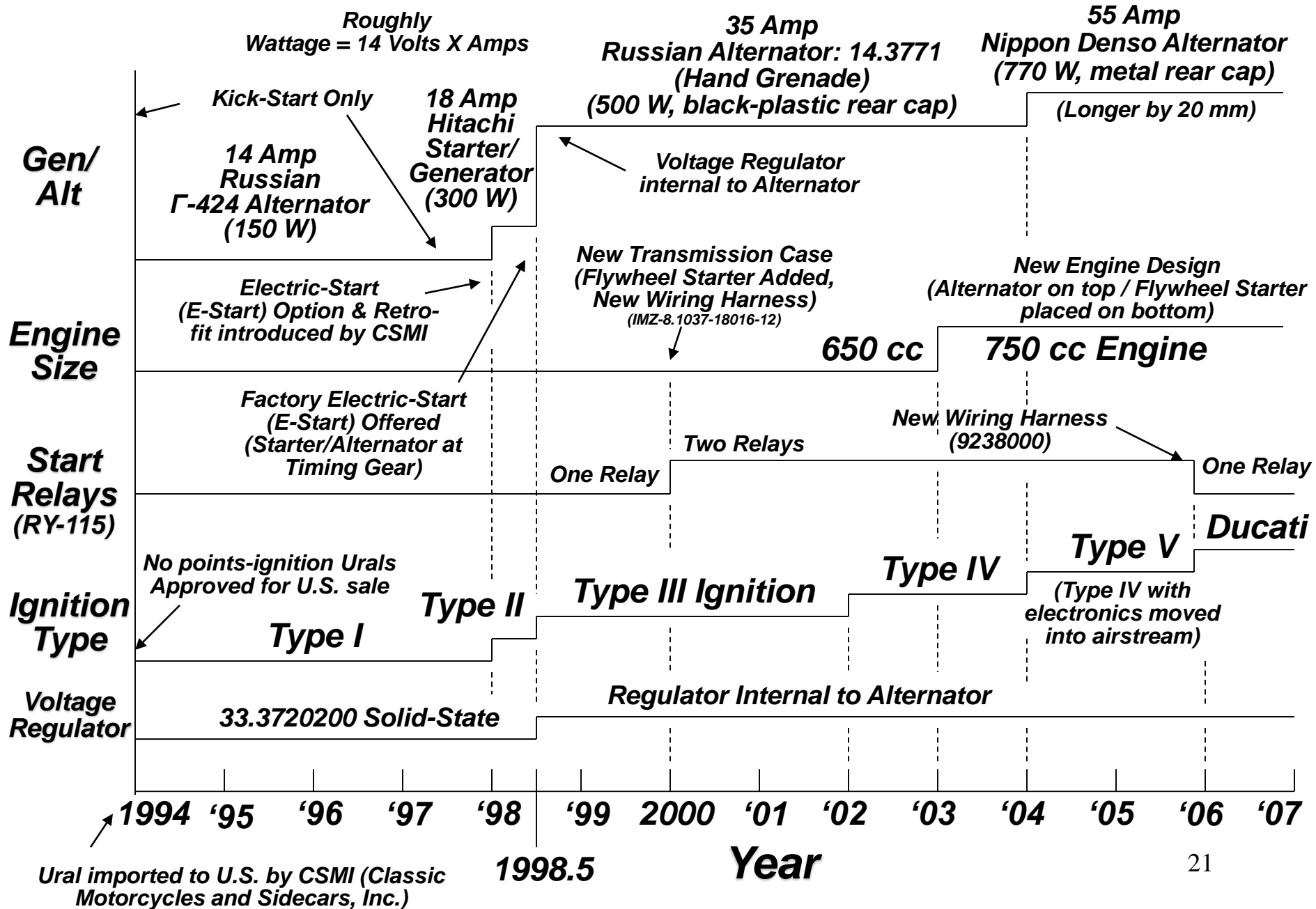
1. Nomenclature: The Cyrillic letter “Г” transliterates (Russian-to-Latin) to “G” or “L” or “T.” Thus we see Г-414 or G-414 or L-414 or T-414, all for the same part.
2. Cannot use Г-424 Alternator with discharged battery or without battery.
3. MB-750 = MW-750, MB-750M = MB-750M
4. The frame (case) of the Г-11/Г-11A 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-11A's into early K-750's.

Generator/Alternator Time-Line



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

Recent Ural Starter/Generator/Alternator Time-line



Russian Ignition Systems

- **Breaker/Distributors**

- **Contact Systems**

- **PM-05: Manual Spark Advance /Retard**
 - **PM-11/PM-302 Breakers: Automatic Spark Advance**

- **Contact-Less (Electronic) Systems**

- **Type I -to- Type V Ignition Systems**
 - **Ducati Ignition System**
 - **Power Arc Ignition System**

- **Ignition Coils Associated with Breaker / Distributor Systems**

- **KM-01 Coil** ↔ **PM-05 Breaker / Distributor**
 - **IG-4048 Coil** ↔ **PM-05 Breaker / Distributor**
 - **B11 Coil** ↔ **PM-05 Breaker / Distributor**
 - **B2B (B2E) Coil** ↔ **PM-05 Breaker / Distributor**
 - **B201 Coil** ↔ **PM-11 or PM-302 Breaker**
 - **B204 Coil** ↔ **PM-302/302A Breaker**

- **Setting the Timing**

- **Static Timing**
 - **Dynamic (Timing Light) Timing**

Within each ignition system, each breaker/distributor is associated (paired) with a distinctive, corresponding ignition coil.

6-Volt Electrical Systems

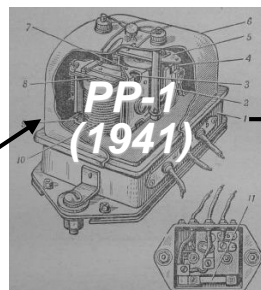
Motorcycle

Ural: M-72, M-72M, M-61
Dnepr: M-72, M-72N



Generator

Regulator



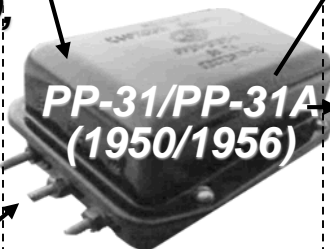
Ignition Coil



Breaker/Distributor



Ural: M-62, M-63, M-66
Dnepr: K-750, K-750M, MB-750,
MB-750M, K-650,
MT-9, MT-12



PM-11A
or
PM-301/PM-302/PM-302A
(with automatic spark
advance)



12-Volt Electrical Systems

Motorcycle

Alternator

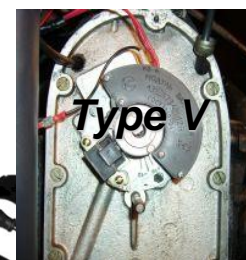
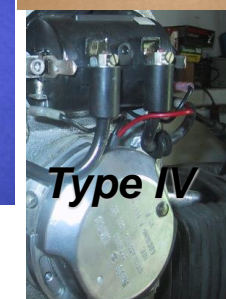
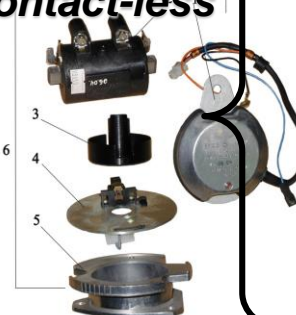
Regulator

Breaker - Ignition Coil

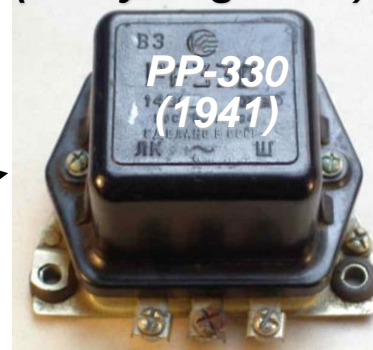
(Relay-Regulator)



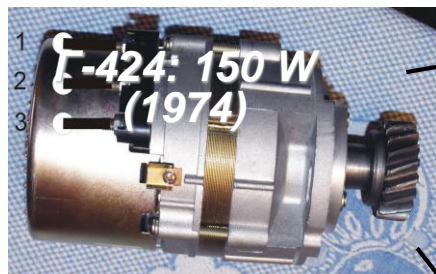
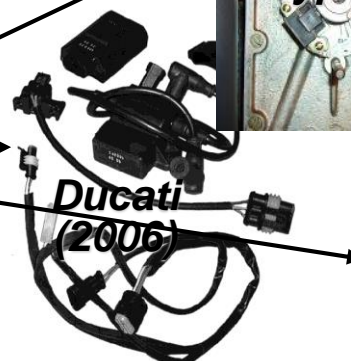
Contact-less



Raceway Services Power Arc



Internal to Alternator



Ural: IMZ 8.103 Series (1999-2003)

Dnepr: None



Ural: IMZ 8.103 Series (2004-present)

Dnepr: None



IMZ (ИМЗ) - Ural (Урал) Headlight Cavity

<i>Model</i>	<i>Voltage</i>	<i>Headlight Asmbly (Фара)</i>	<i>Speedometer</i>	<i>Headlight</i>	<i>Parking Light</i>	<i>Switch Key</i>	<i>Cavity Fuse</i>
<i>M-72</i>	<i>6-Volt</i>	<i>72184, ФГ-6</i>	<i>72174, СП-8-Б</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-72M</i>	<i>6-Volt</i>	<i>72184, ФГ-6</i>	<i>72174, СП-8-Б</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-72K</i>	<i>6-Volt</i>	<i>72184, ФГ-6</i>	<i>72174, СП-8-Б</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-61</i>	<i>6-Volt</i>	<i>3711100, ФГ-116</i>	<i>6217004, СП-102</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-62</i>	<i>6-Volt</i>	<i>3711100, ФГ-116</i>	<i>6217004, СП-102</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-63 (Ural-2)</i>	<i>6-Volt</i>	<i>3711100, ФГ-116</i>	<i>6217004, СП-102</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-66 (Ural-3)</i>	<i>6-Volt</i>	<i>3711100, ФГ-116</i>	<i>6217004, СП-102</i>	<i>72176-Б, А6-32+32</i>	<i>72177-Б, А6-2</i>	<i>7218478-А</i>	<i>15 Amp</i>
<i>M-67</i>	<i>12-Volt</i>	<i>8.101-18004-10 ФГ-137</i>	<i>6217004, СП-102</i>	<i>A12-45+40</i>	<i>A12-4</i>	<i>BK-857</i>	<i>-</i>
<i>M-67.36</i>	<i>12-Volt</i>	<i>8.101-18004-10 ФГ-137</i>		<i>A12-45+40</i>	<i>A12-4</i>	<i>BK-857</i>	<i>-</i>
<i>8.103 and 8.107 Series "650"</i>	<i>12-Volt</i>	<i>8.101-18004-10 ФГ-137</i>	<i>IMZ-8.1037- 17004</i>	<i>A12-45+40</i>	<i>A12-4</i>	<i>IMZ-8.103-18050, 141.370400</i>	<i>-</i>
<i>8.103,8.103X, 8.123,8.123X 650 & 750 Series</i>	<i>12-Volt</i>	<i>ФГ137-3711010-02</i>	<i>IMZ-8.1037- 17004</i>	<i>A12-45+40</i>	<i>A12-4</i>	<i>IMZ-8.103-18050, 141.370400</i>	<i>-</i>
<i>8.103,8.103X, 8.123,8.123X "750"Series</i>	<i>12-Volt</i>	<i>ФГ137-3711010-02</i>	<i>IMZ-8.1037- 17004</i>	<i>A12-45+40</i>	<i>A12-4</i>	<i>IMZ-8.103-18050, 141.370400</i>	<i>-</i>

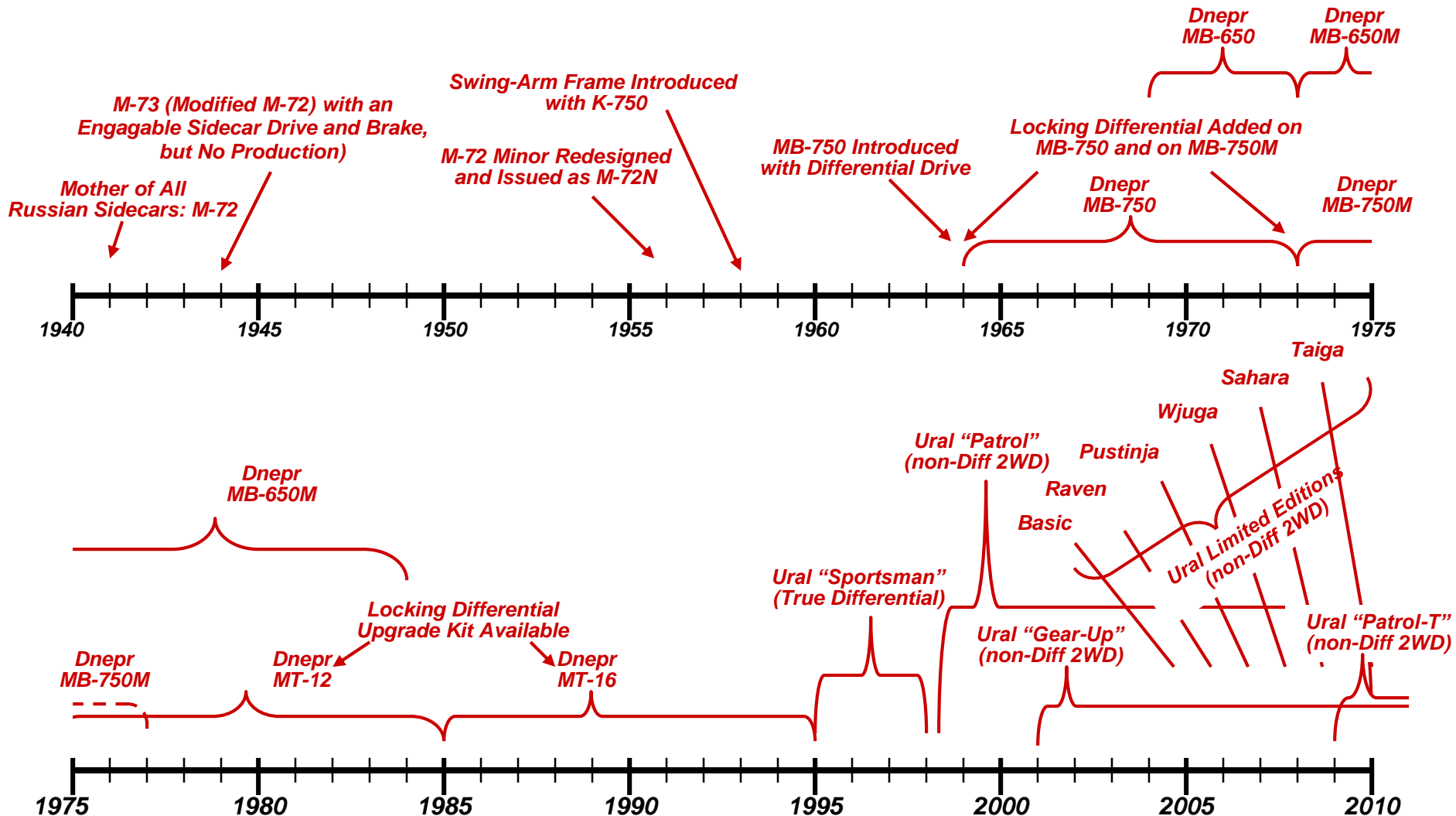
KMZ (KM3) - Dnepr (Днепр) Headlight Cavity

Model	Voltage	Headlight Cavity (Фара)	Speedometer	Headlight	Parking Light	Switch Key	Cavity Fuse
M-72	6-Volt	72184-2, ФГ-6	72174, СП-8Б	72176-Б, А6-32+32	72177-Б, А6-2	7218478-А	Mp-20, 15-А
M-72N (H)	6-Volt	72184-2, ФГ-6	72174, СП-8Б	72176-Б, А6-32+32	72177-Б, А6-2	7218478-А	Mp-20, 15-А
K-750	6-Volt	650184-Б, ФГ-6А	72174-А, СП-8Б	85017-Б, А6-32+32	72177-Б, А6-2	7218478-А	Mp-20, 15-А
		72184		72176-Б, А6-32+32	72177-Б, А6-2		Mp-20, 15-А
K-750M	6-Volt	650184-Б, ФГ-6А	850174, СП-8Б	85017-Б, А6-32+32	72177-Б, А6-2	7218478-А	Mp-20, 15-А
MT-12 (Dnepr-12)	6-Volt	650184-Б, ФГ-6А	850174, СП-8Б	65018901	72177-Б, А6-2	7218478-А	Mp-20, 15-А
MB-750	6-Volt	650184-Б, ФГ-6А	850174, СП-8Б	65018901	72177-Б, А6-2	7218478-А	Mp-20, 15-А
MB-750M	6-Volt	650184-Б, ФГ-6А	850174, СП-8Б	65018901	72177-Б, А6-2	BK-857	Mp-20, 15-А
K-650/MT-8	6-Volt	650184-Б, ФГ-6А	850174, СП-8Б	85017-Б, А6-32+32	72177-Б, А6-2		Mp-20, 15-А
K-650/MT-9	6-Volt	3711100, ФГ-116	3802010, СП-102	85017-Б, А6-32+32	72177-Б, А6-2	7218478-А	Mp-15, 15-А
MB-650	12-Volt	3711100, ФГ-116 or 3711010-Б1, ФГ-137	3802010, СП-102	A12-45+40	A12-4	141.3704	Mp-20, 15-А
MT-10	12-Volt	3711100, ФГ-116 or 3711010-Б1, ФГ-137	3802010, СП-102	A12-45+40, A12-50+40	A12-4, A12-1.5	7218478-А or BK-857	Mp-20, 15-А
MT-10.36	12-Volt	3711100, ФГ-116 or 3711010-Б1, ФГ-137	3802010, СП-102	A12-45+40	A12-4	7218478-А or BK-857	
MT-11 (Dnepr-11)	12-Volt	3711010-Б1, ФГ-137Б	3802010, СП-102	A12-45+40	A12-4	141.3704	
MT-16 (Dnepr-16)	12-Volt	3711010-Б1, ФГ-137Б	3802010, СП-102	A12-45+40	A12-4	141.3704	

Notes:

1. MT-12 is civilian version of the MB-750
2. Master Switch Is Not in Headlight Cavity for MT-9, MT-67, MT-67.36, MT-11 and MT-16

Russian Two-Wheel Drive (2WD) Time-Line



KMZ's (Dnepr factory) first production 2WD was the MB-750 (1964), with a rear drive modeled on the WW-II BMW R75.
The first production Ural 2WD post-war was the short-lived Sportsman in the mid-1990's, to be followed by the non-diff Patrol and Gear-Up.

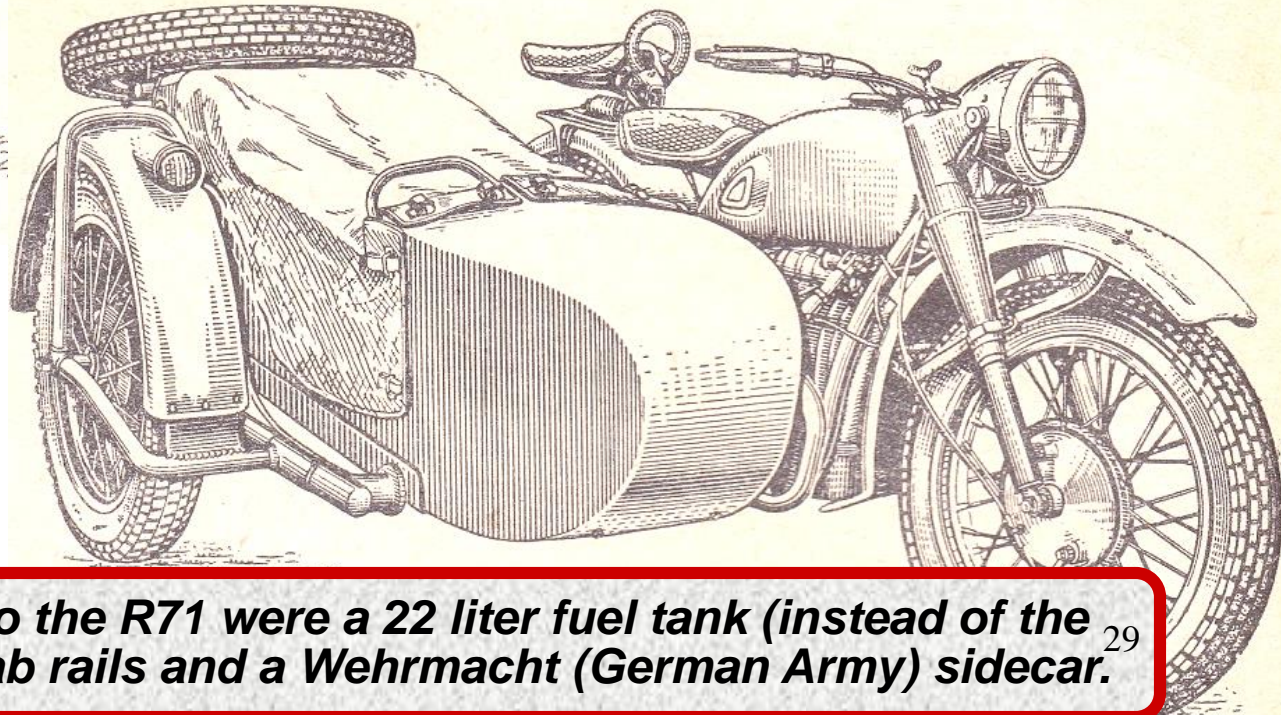
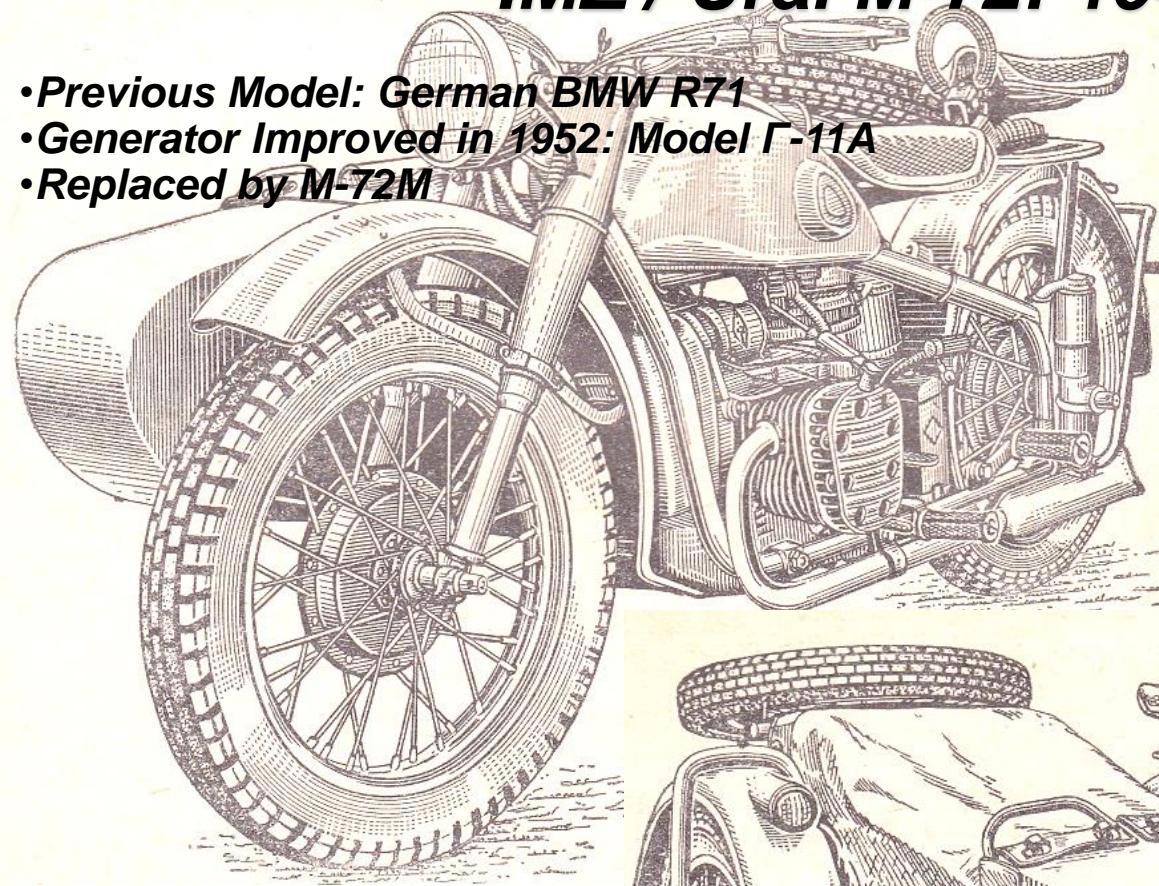
Ural (Урал) / Dnepr (Днепр) Drive Train and Rear Suspension

<i>Ural (Урал) Model</i>	<i>Production</i>	<i>Engine</i>	<i>Type</i>	<i>Drive Train</i>	<i>Rear Suspension</i>
<i>M-72</i>	<i>1941-1956</i>	<i>750cc SV</i>	<i>M72</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>M-72K</i>	<i>1954-1960</i>	<i>750cc SV</i>	<i>M72</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>M-72M</i>	<i>1956-1960</i>	<i>750cc SV</i>	<i>M72</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>M-61</i>	<i>1957-1961</i>	<i>650cc OHV</i>	<i>Ural 650</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>M-62 (Ural-1)</i>	<i>1961-1965</i>	<i>650cc OHV</i>	<i>Ural 650</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>M-63 (Ural-2)</i>	<i>1965-1980</i>	<i>650cc OHV</i>	<i>Ural 650</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>M-66 (Ural-3)</i>	<i>1968-1975</i>	<i>650cc OHV</i>	<i>Ural 650</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>M-67 (8.101)</i>	<i>1972-1977</i>	<i>650cc OHV</i>	<i>Ural 650</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>M-67.36</i>	<i>1973-1984</i>	<i>650cc OHV</i>	<i>M67-36</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>“Sportsman” IMZ 8.107</i>	<i>1995-1998</i>	<i>650cc OHV</i>	<i>M67-36</i>	<i>Full-Time 2WD with non-Locking Differential</i>	<i>Swing Arm</i>
<i>8.103 & 8.107 Series “650”</i>	<i>1984-2002</i>	<i>650cc OHV</i>	<i>M67-36</i>	<i>Full-Time 1WD with Engageable 2WD (No Diff)</i>	<i>Swing Arm</i>
<i>“750”Series</i>	<i>2003-Present</i>	<i>750cc OHV</i>	<i>Ural 750</i>	<i>Full-Time 1WD with Engageable 2WD (No Diff)</i>	<i>Swing Arm</i>

<i>Dnepr (Днепр) Model</i>	<i>Production</i>	<i>Engine</i>	<i>Type</i>	<i>Drive Chain</i>	<i>Rear Suspension</i>
<i>M-72</i>	<i>1949-1956</i>	<i>750cc SV</i>	<i>M72</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>M-72N (H)</i>	<i>1956-1959</i>	<i>750cc SV</i>	<i>M72</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Plunger</i>
<i>K-750</i>	<i>1959-1964</i>	<i>750cc SV</i>	<i>K-750M</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>K-750M</i>	<i>1964-1970</i>	<i>750cc SV</i>	<i>K-750M</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>MT-12 (Dnepr-12)</i>	<i>1974-1985</i>	<i>750cc SV</i>	<i>K-750M</i>	<i>Full-Time 2WD with Non-Locking Differential</i>	<i>Swing Arm</i>
<i>MB-750</i>	<i>1964-1973</i>	<i>750cc SV</i>	<i>K-750M</i>	<i>Full-Time 2WD with Locking (Engageable) Diff</i>	<i>Swing Arm</i>
<i>MB-750M</i>	<i>1973-1977</i>	<i>750cc SV</i>	<i>K-750M</i>	<i>Full-Time 2WD with Locking (Engageable) Diff</i>	<i>Swing Arm</i>
<i>K-650/MT-8</i>	<i>1967-1971</i>	<i>650cc OHV</i>	<i>MT801</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>K-650/MT-9</i>	<i>1971-1976</i>	<i>650cc OHV</i>	<i>MT801</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>MB-650</i>	<i>1971-1973</i>	<i>650cc OHV</i>	<i>MT801</i>	<i>Full-Time 2WD with Non-Locking Differential</i>	<i>Swing Arm</i>
<i>MB-650M</i>	<i>1973-1984</i>	<i>650cc OHV</i>	<i>MT801</i>	<i>Full-Time 2WD with Non-Locking Differential</i>	<i>Swing Arm</i>
<i>MT-10</i>	<i>1975-1984</i>	<i>650cc OHV</i>	<i>MT801</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>MT-10.36</i>	<i>1984-1988</i>	<i>650cc OHV</i>	<i>MT-10-36</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>MT-11 (Dnepr-11)</i>	<i>1985-1995</i>	<i>650cc OHV</i>	<i>MT-10-32</i>	<i>Full-Time, Straight Final Drive (1WD)</i>	<i>Swing Arm</i>
<i>MT-16 (Dnepr-16)</i>	<i>1985-1995</i>	<i>650cc OHV</i>	<i>MT-10-36</i>	<i>Full-Time 2WD with Non-Locking Differential</i>	<i>Swing Arm</i>

IMZ / Ural M-72: 1941-1956

- Previous Model: German BMW R71
- Generator Improved in 1952: Model Г-11А
- Replaced by M-72М



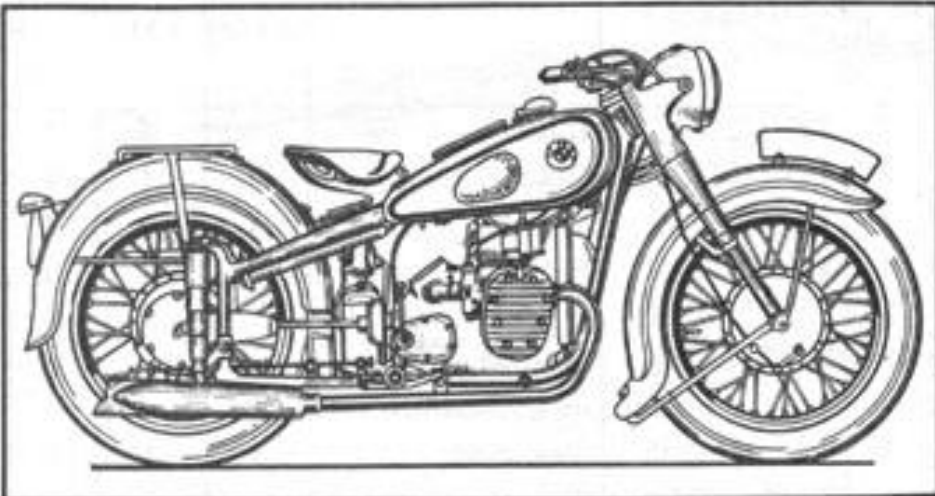
The only changes to the R71 were a 22 liter fuel tank (instead of the original 14 liter), grab rails and a Wehrmacht (German Army) sidecar.²⁹

IMZ / Ural M-72: 1941-1956

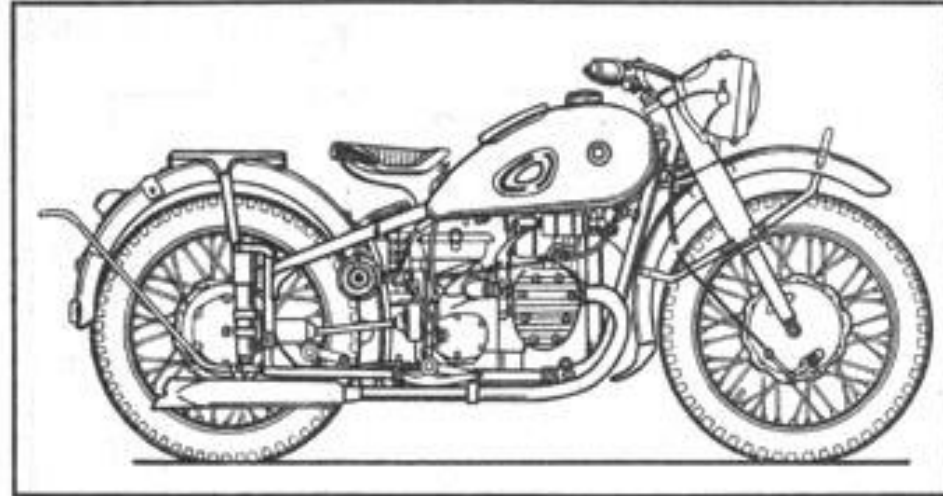


Part IB will high-light M-72 differences.

M-72 Early Pre- M-72 (BMW R71) and Later (1956) Fuel Tanks



Прародитель М-72 и его потомков — БМВ-Р71 1938 года. Обращают на себя внимание более плоский, чем у М-72 бензобак, отсутствие заднего седла, глубокие щитки колес с «оттянутыми» концами, шестиугольный (типично немецкий) задний номерной знак и установленный на щитке передний номерной знак.

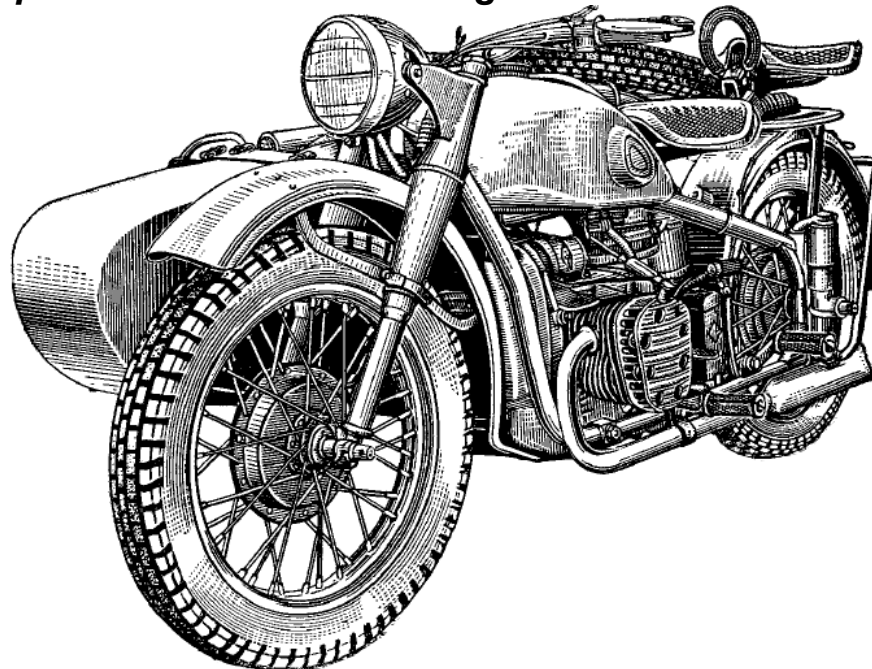


М-72М 1956 года. Для него характерны поднятый передний щиток, тормозной барабан с «кружевным» венцом, массивный двухступенчатый воздушный фильтр. Звуковой сигнал расположен не перед задним щитком, а справа от него. Появился новый «обтекаемый» задний фонарь.

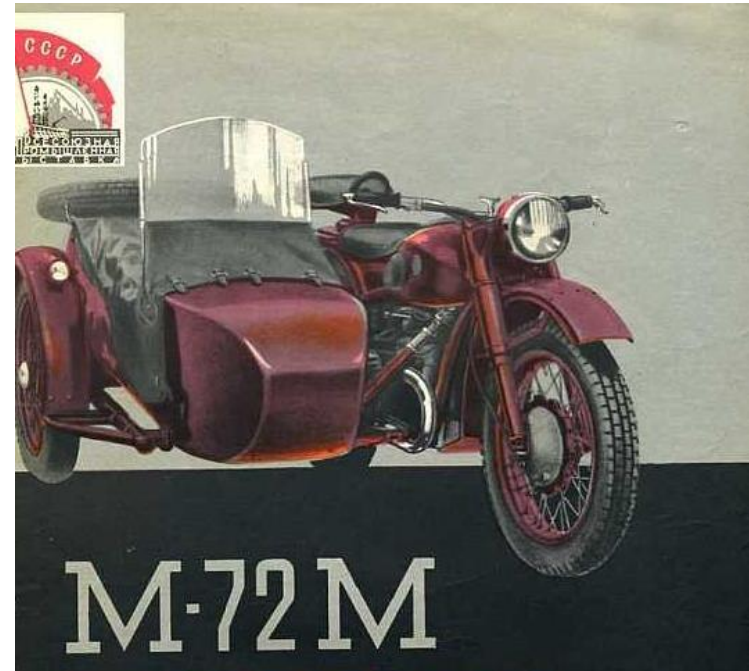
The M-72 is based on the German BMW R-71 (left) and was upgraded to the M-72M in 1956.

IMZ / Ural M-72M: 1956-1960

- **Previous Model: M-72**
- **Most Plentiful M-72's Built**
- **"M" Models Were Civilian Variants, Not Military**
- **Improvements:**
 - **Engine**
 - **Replaced Front Bearing Camshaft (Ball Bearings Instead of Sleeves)**
 - **Camshaft Replaced**
 - **Strengthened Frame**
 - **Transmission Gearbox: Main Gear Reducer Changed**
 - **Wheels**
 - **Stamped "Lacy" Crown on Brake Drum to More Securely Hold the Spokes**
 - **Aluminum Wheel Hubs**
 - **High-Mount Front Fender**
 - **Raised and Attached to Sprung Part of Front Fork to Avoid Wheel-Lock from Sticky Mud**
 - **Rear Fender Support Loop from Bottom of the Plunger**
 - **New Sidecar**
- **Replaced by M-61**



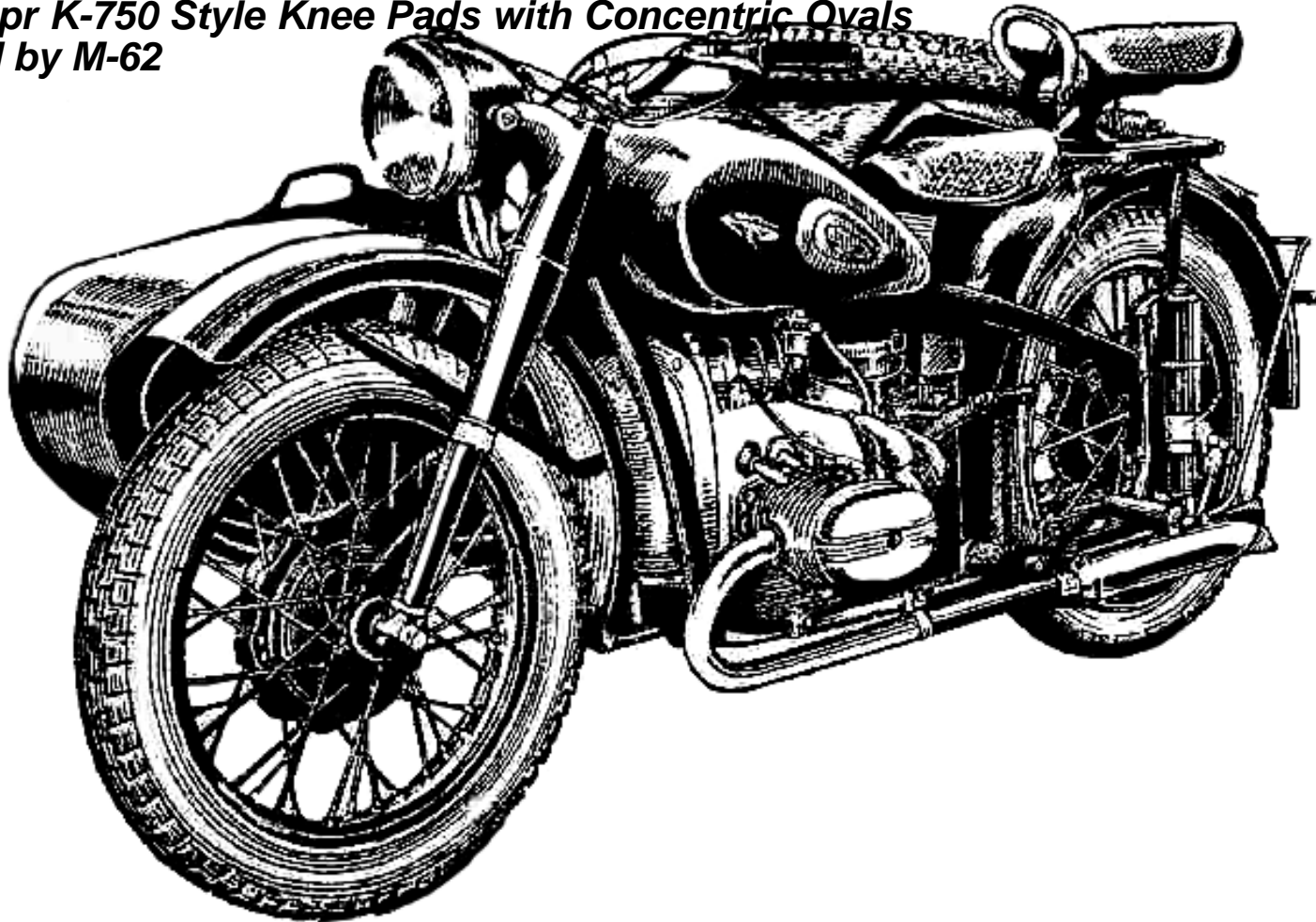
IMZ / Ural M-72M: 1956-1960



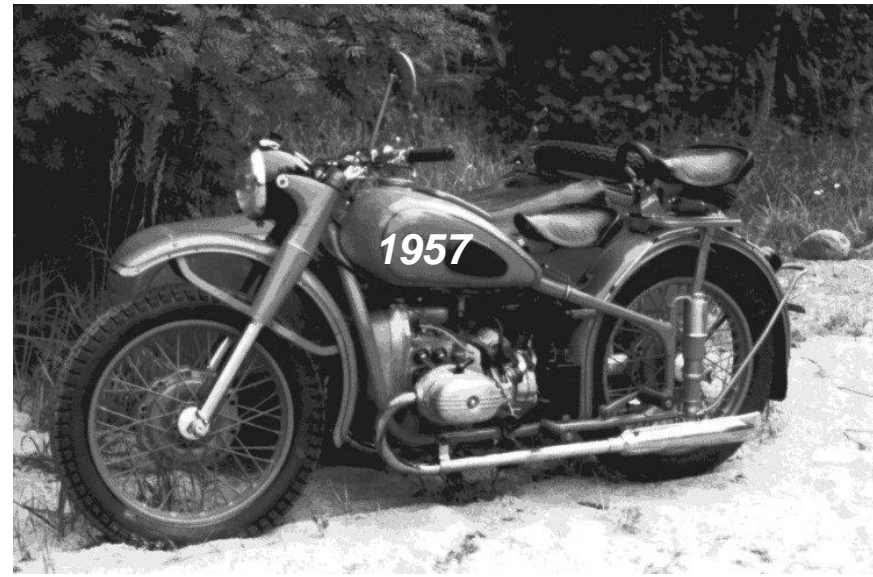
***The military M-72M retained the M-72 gas tank.
Notice the bottle-cap spokes.***

IMZ / Ural M-61: 1957-1963

- **Previous Model: M-72M**
- **Transitional Model with Suspension of M-72 and New Engine (650 cm³)**
- **Increased Stroke of Front Fork and Rear Suspension**
 - Modern Telescopic Forks
 - Taller Rear Plunger
- **Handlebar Lever: Changed from BMW-Style**
- **KMZ/Dnepr K-750 Style Knee Pads with Concentric Ovals**
- **Replaced by M-62**



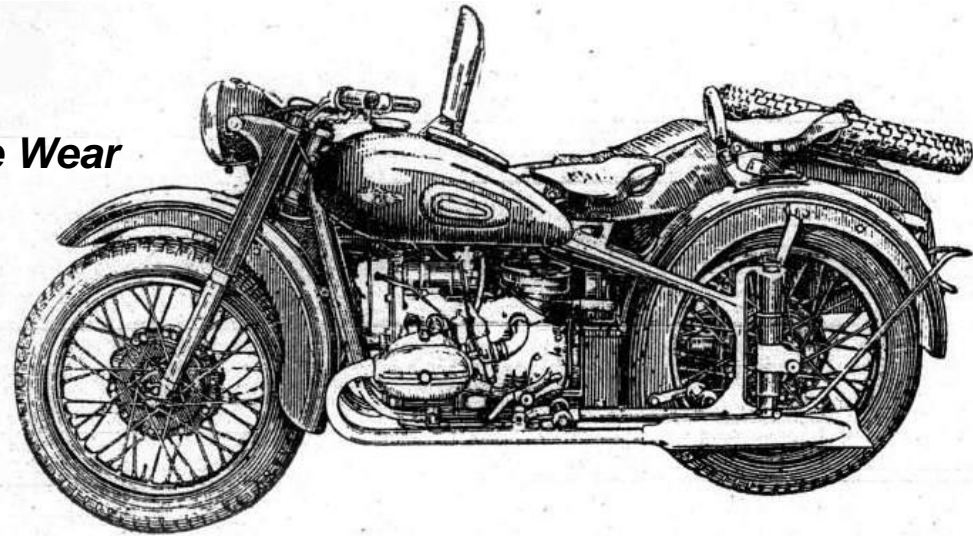
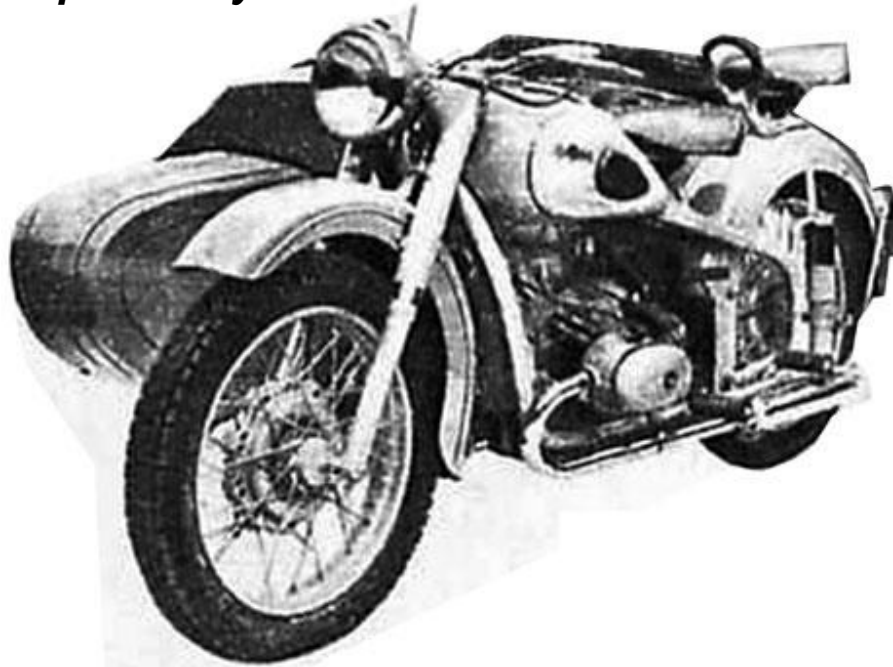
IMZ / Ural M-61: 1957-1963



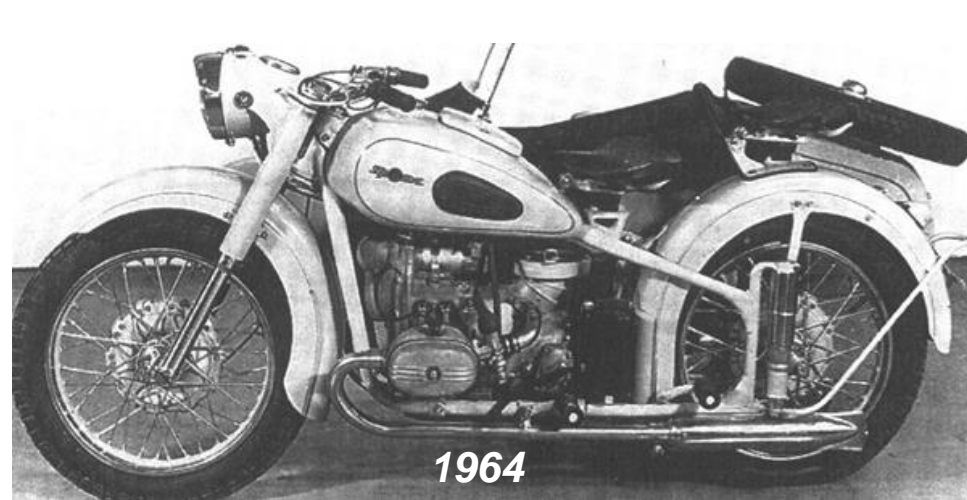
The M-61 was almost unchanged from the earlier flathead/sidevalve M-72M, except for a 650cc overhead valve boxer OHV engine.

IMZ / Ural M-62 (Ural-1): 1961-1965

- **Previous Model:** M-61
- **Basically an M-61**
- **Increased Engine Power (650cc) by 2 Hp**
- **Main Differences:**
 - **Redesigned Frame and Modified Rear Plungers**
 - **Front Fenders: Full-Length Side Plates**
 - **Rubber Cushion Blocks under Seats Replace Earlier Springs**
 - **Rear Saddle Assembly Mounted Directly onto Fender**
 - **New Gearbox**
 - **Upgraded Ignition System**
 - **Introduced Automatic Ignition Timing**
 - **Increased Suspension Travel**
 - **Changed Cam Profile Camshaft to Reduce Wear**
- **Maximum Speed: 95 km/h**
- **Replaced by M-63**



IMZ / Ural M-62: 1961-1965



Ural re-designed the frame and modified the rear plungers from the M-61.

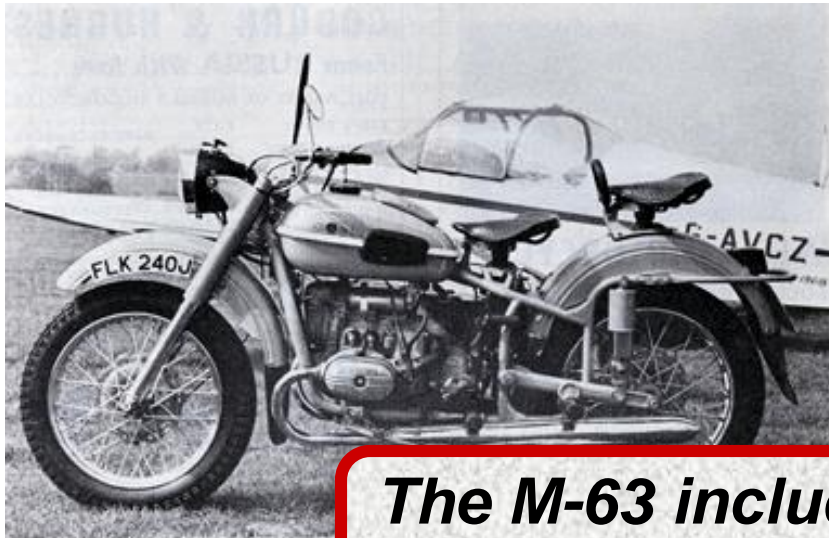
IMZ / Ural M-63 (Ural-2): 1963-1980

- **Previous Model: M-62**
- **Main Differences:**
 - **First Ural to Use a Rear Swing-Arm Suspension**
 - **Rear Wheel Swing-Arm Suspension with Hydraulic Shock Absorbers**
 - **Unlike KMZ/Dnepr Motorcycles, Swing-Arm on Outside of Frame**
 - **Shortened Front Fenders and Added Side Plates**
 - **Increased Volume Fuel Tank from 19 liters to 20 liters**
 - **New Exhaust System: More Environmentally-Friendly**
 - **Significantly Increased Clearance**
 - **Various Cosmetic Changes Including Rubber Tank Band and Mud Flaps**
- **Maximum Speed: 95 km/h**
- **Replaced by M-66**



Ural added the classic “rubber-banding” of the fuel tank and “mud flaps.”

IMZ / Ural M-63 (Ural-2): 1963-1980



The M-63 includes cosmetic changes, including the rubber tank-band.

IMZ / Ural M-66 (Ural-3): 1968-1977

- **Replaced M-63**
- **First Ural to Use Paper Oil Filter Cartridge, Otherwise Almost Exact Copy from M-63**
- **Only External Changes: Motorcycle-Mounted Directional Signals**
- **Significant Internal Changes:**
 - **Engine Power Increased to 32 hp**
 - **Increased Durability of Engine**
 - **Full-Flow Oil Filter**
 - **New Design of Crankshaft**
 - **Sidecar Affixed with Rubber Springs and Cushions Instead of Previous Leaf Springs**
 - **Telescopic Fork and Pendulum Rear Suspension**
- **Maximum Speed: 95 km/h**
- **Replaced by M-67**



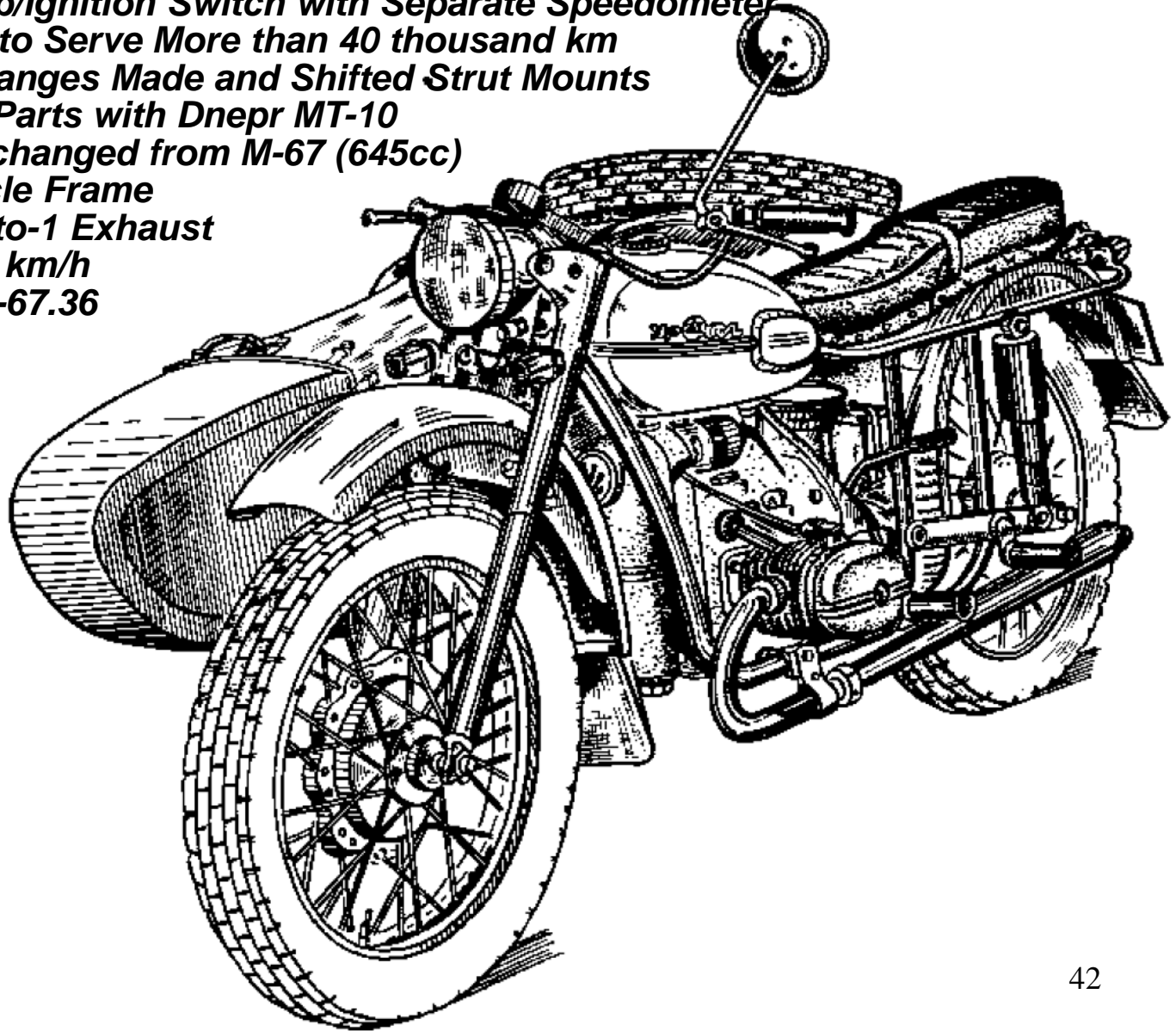
IMZ / Ural M-66 (Ural-3): 1968-1977



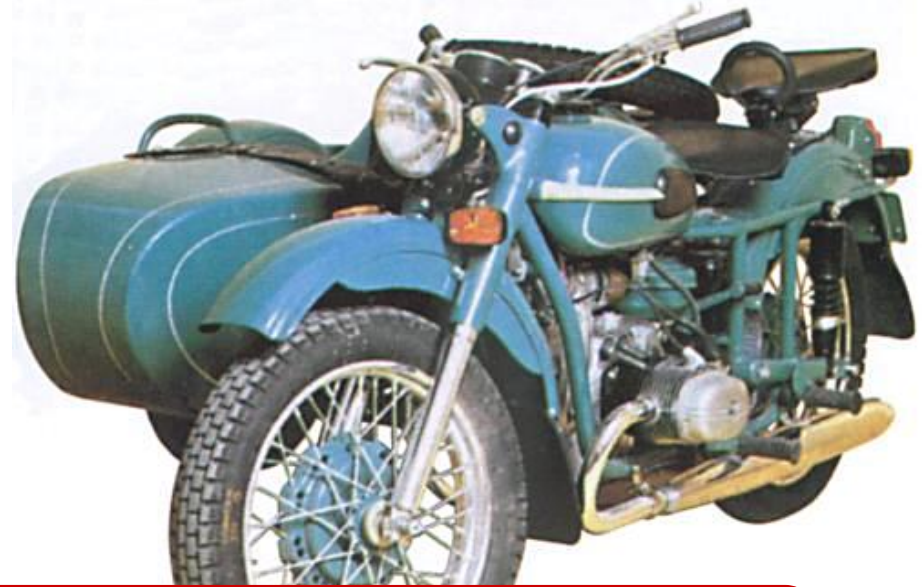
The M-66 continued the banded fuel tank.

IMZ / Ural M-67: 1972-1977

- **Replaced M-66**
- **Main Difference: Transition to 12-Volt Electric Equipment**
- **Redesigned Headlamp/Ignition Switch with Separate Speedometer**
- **High Reliability: Able to Serve More than 40 thousand km**
- **More Serviceable: Changes Made and Shifted Strut Mounts**
- **Interchangeability of Parts with Dnepr MT-10**
- **Engine Remained Unchanged from M-67 (645cc)**
- **Redesigned Motorcycle Frame**
- **Exhaust System: 2-into-1 Exhaust**
- **Maximum Speed: 105 km/h**
- **Replaced by Model M-67.36**



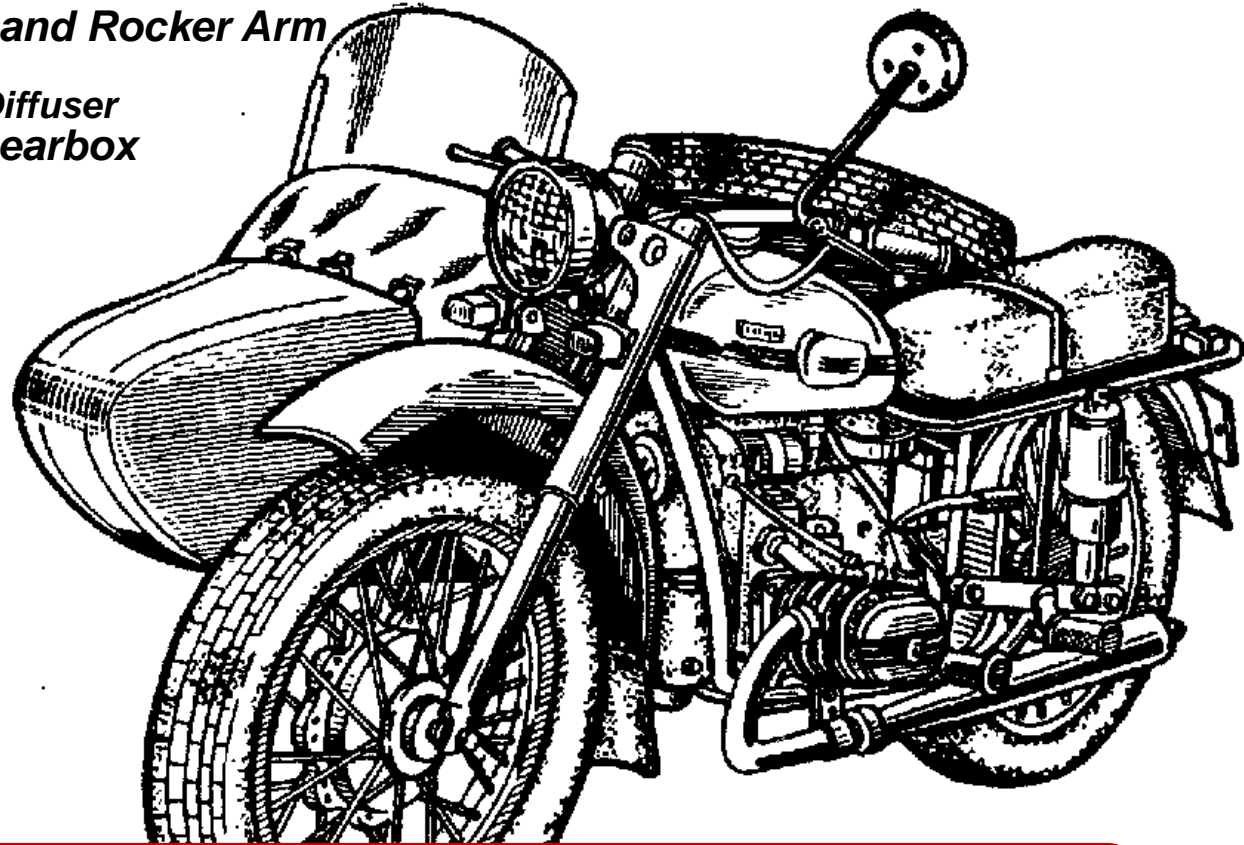
IMZ / Ural M-67: 1972-1977



Ural's M-67 was developed from the M-66, and was imported into the UK in relatively large numbers. ⁴³

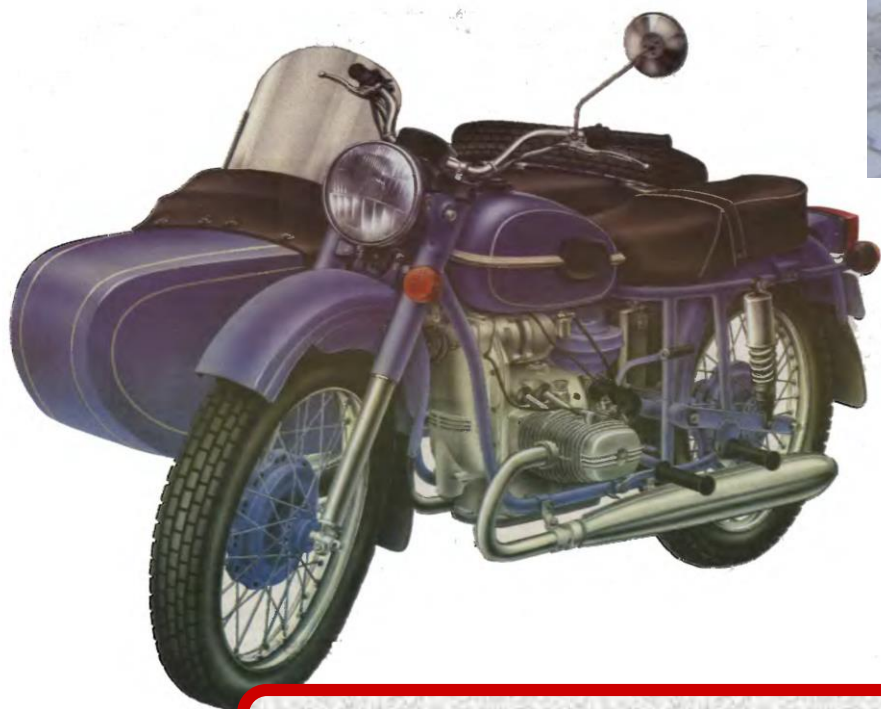
IMZ / Ural M-67.36: 1973-1984

- Replaced M-67
- Most popular model of motorcycle "Ural".
- Produced in Two Versions;
 - Two Wheel Drive (2WD) for Rugged Places
 - Also Produced Without 2WD
- Late M-67 (as Well as Ural 8-103.10)
 - Increased Engine Power from 32 Hp (23.5 kW) to 36 Hp (26.5 kW)
 - Changed Cylinder Head
 - Changed Diameter of Valve and Rocker Arm
 - Changed Carburetors
 - Use K-301G Larger Diameter Diffuser
- Addition of Reverse Gear in Gearbox
- Maximum Speed: 105 km/h
- Replaced by IMZ-8.103-30



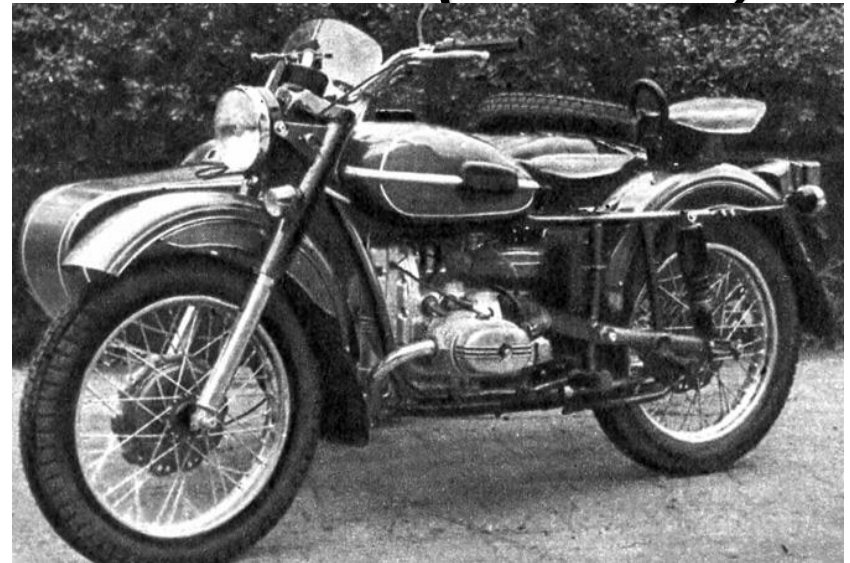
In 1976, the engine was increased from 32 to 36 hp,⁴⁴ and the motorcycle was named the Ural M-67.36.

IMZ / Ural M-67.36: 1973-1984



In 1976, the engine was increased from 32 to 36 hp, and the motorcycle was named the Ural M-67.36.

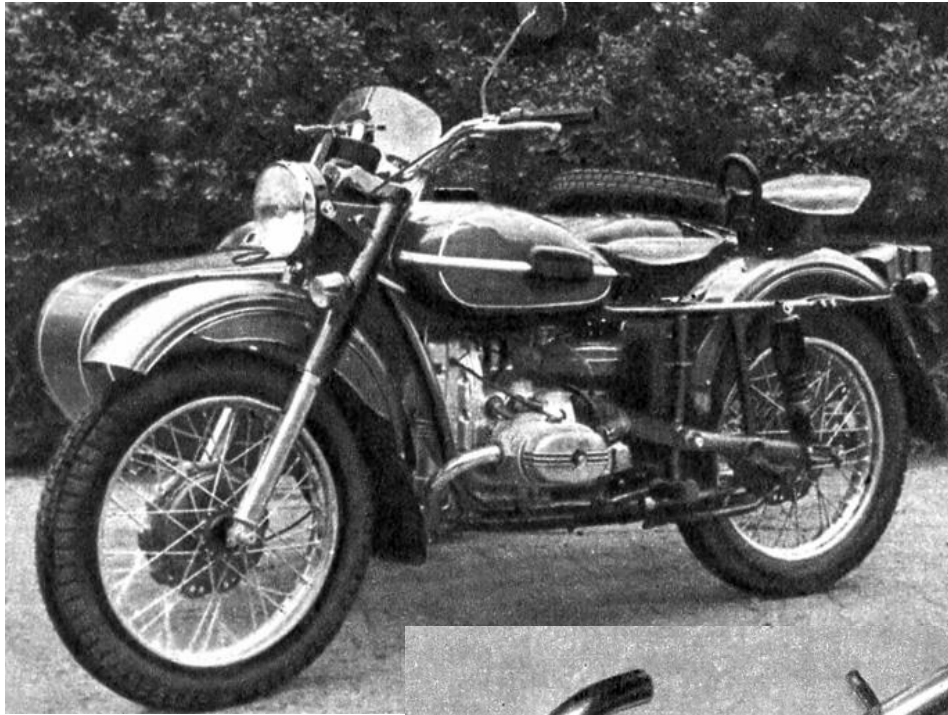
Ural IMZ-8.XXX (Ural 650) 650cc OHV (1984-94)



The IMZ-8.XXX (800 series) served as Ural's basic machine, carried on into the modern 650 solo and sidecar models with various cosmetic and design options.

IMZ / Ural IMZ-8.103-30 (Ural 650) (1984-1986)

- **Previous Model:** M-67.36
- **Improvements from Previous Model**
 - Improved Rear Suspension
 - Exhaust System with One Muffler (Silencer)
- **Engine Power:** 32 Hp
- **Maximum Speed:** 105 km/h
- **Replaced by** IMZ-8.103-10



Single Exhaust Muffler System

IMZ / Ural IMZ-8.103-10 (650cc) (1986-1994)

- Previous Model: IMZ-8.103-30
- Transmission with Reverse
- Telescopic Front Fork
- Next Model: IMZ-8.103-40 "Tourist"



IMZ / Ural IMZ-8.103-40 "Tourist" (650cc)

- **Previous Model: IMZ-8.103-10**
- **First Experimental-Industrial Batch, Released in 1990**
- **Designed to Travel on Bad Roads, with Increased Load**
- **Main Difference Noticeable at First Glance: Leading Link Front Fork**



IMZ / Ural 750: 2003-Present



IMZ-8.1036 Retro



2011 Patrol

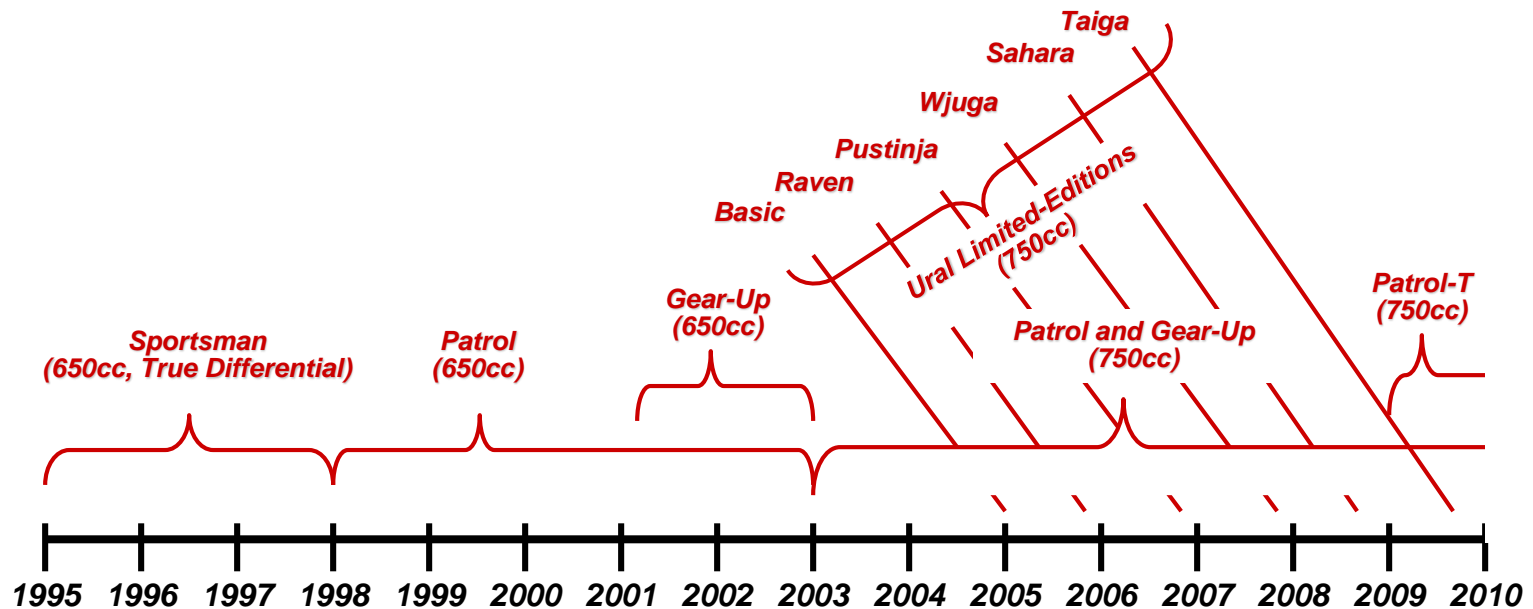


2010 IMZ-8.1037 Gear-Up



The IMZ-8.XXX serves as Ural's basic machine for the 21st century, with the 750 cc engine.

Ural Sidecar Two-Wheel Drive (2WD) Time-Line



The first production Ural 2WD was the short-lived Sportsman in the mid-1990's, followed by the non-diff Patrol and Gear-Up, available today with a 750cc engine.

Ural “Limited Edition” Sidecars with Full-Time 1WD and Engageable 2WD

Basic (2005)



Vorona “Raven” (2006)



Pustinja (2007)



Wjuga (2008)



Sahara (2009)

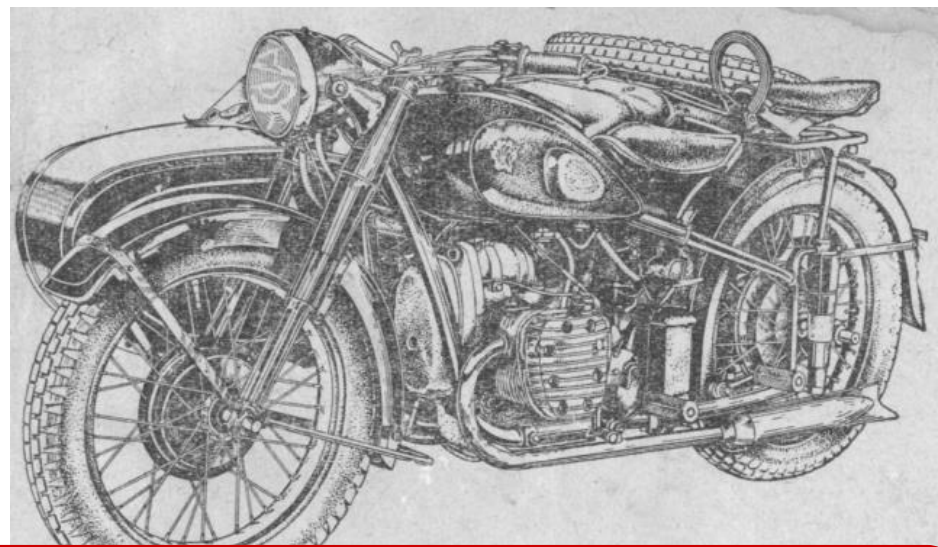
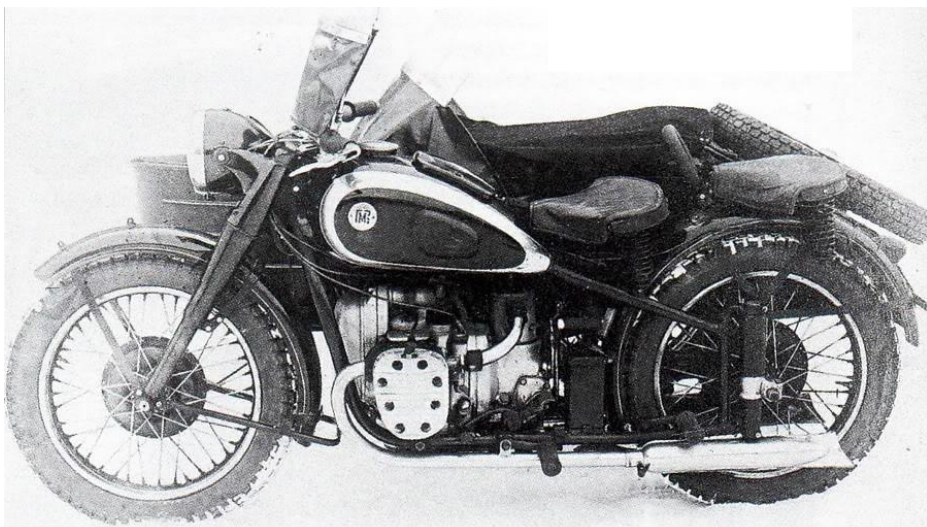
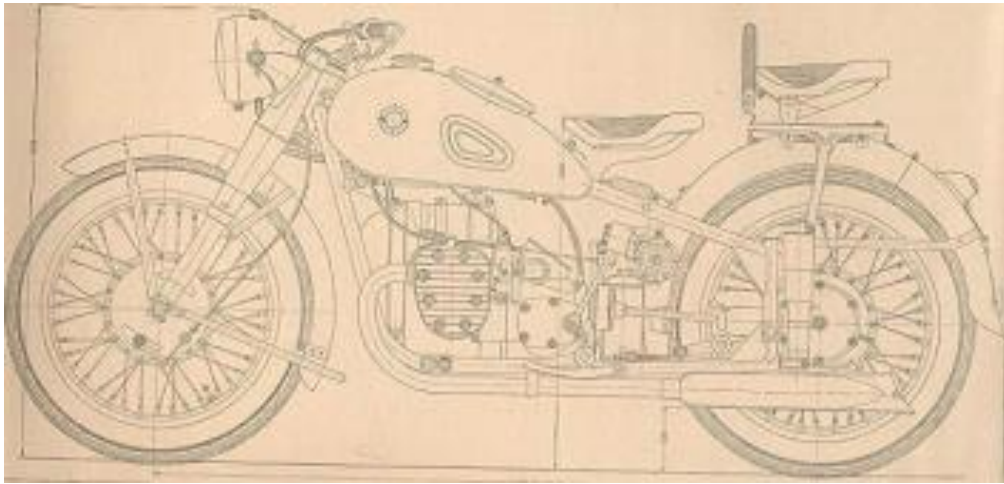


Taiga (2010)



**Modern Urals employ an engageable, non-differential,
only for off-road driving.**

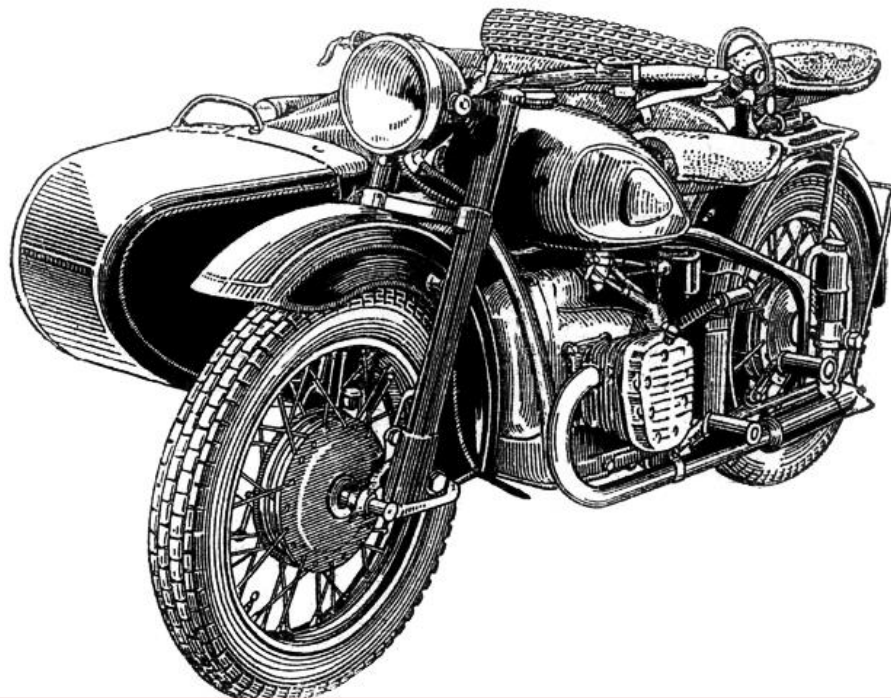
KMZ / Dnepr M-72: 1949-1956



In 1949 the GMZ plant at Gorkiy (Nizhniy Novogorod) was transferred to the KMZ factory in Kiev to manufacture the M-72 for the Soviet Armed forces. The KMZ / Dnepr M-72 was virtually identical to the IMZ / Ural M-72.

KMZ / Dnepr M-72N (M-72H): 1956-1959

- **Previous Model: M-72**
- **Short Leading Link Front Fork**
- **Improvements to Engine**
 - **Front Bearing Camshaft (Use of Ball Bearings Instead of Sleeves)**
 - **Changed Shape of Cylinder Head Ribs and Increased Compression Ratio**
- **Improvements to Chassis**
 - **Strengthened Frame**
 - **Changed Transmission Gearbox**
 - **Reinforced wheel**
 - **Coke-Bottle for More Reliable Fastening of Spokes**
 - **Raised Front Fender and Attached to Sprung Part of Front Fork to Avoid Wheel Lock from Sticky Mud**
- **New Sidecar with Spring (not torsion) Suspension, Wheels and Hydraulic Shock Absorber**
- **Replaced by K-750**



In 1956 the M-72 was given a minor redesign and issued as the M-72N.

KMZ / Dnepr M-72N (M-72H): 1956-1959



The M-72N also retained the same 7210171-B fuel tank^{5f}.

KMZ / Dnepr K-750: 1958-1965

- **Previous Model: M-72**
- **Short-Throw, Leading-Link Front Fork**
 - Only Used for First Couple of Years before Change to Modern Telescopics
- **Full-Width Aluminum Hubs Used to the End of the KMZ Line**
- **Engine Equipped with New Cylinder Heads**
 - Changed Shape of Ribs and Increased Compression Ratio
- **Brake Cable Enters Top of Hub on K-750's vs. thru the Bottom (where it could be damaged by bottoming out) on M-72H's**
- **Upgraded suspension**
 - Replaced Plunger Framed M72-N with Swing-Arm Framed K-750
 - Rear Swing-Arm on Inside of Frame, Unlike Later Ural Swing-Arm Located on Outside
 - Better Cope with Roads and Terrain Throughout the USSR
- **Improved Engine Cooling System**

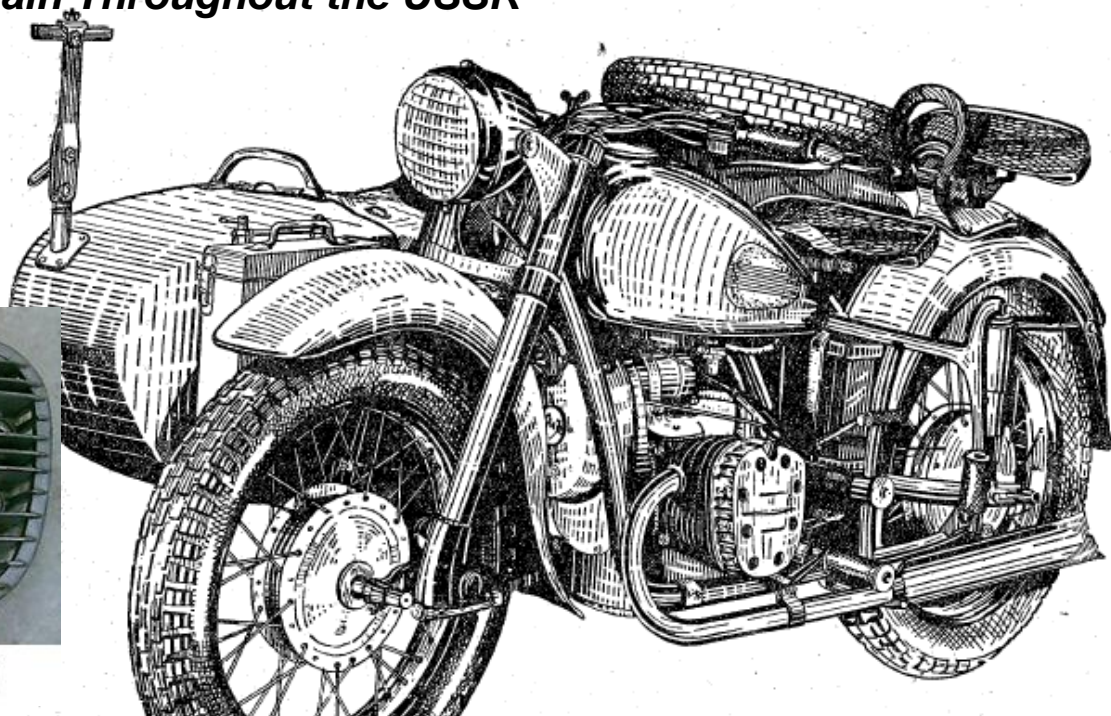
Cylinder Head Evolution



M-72

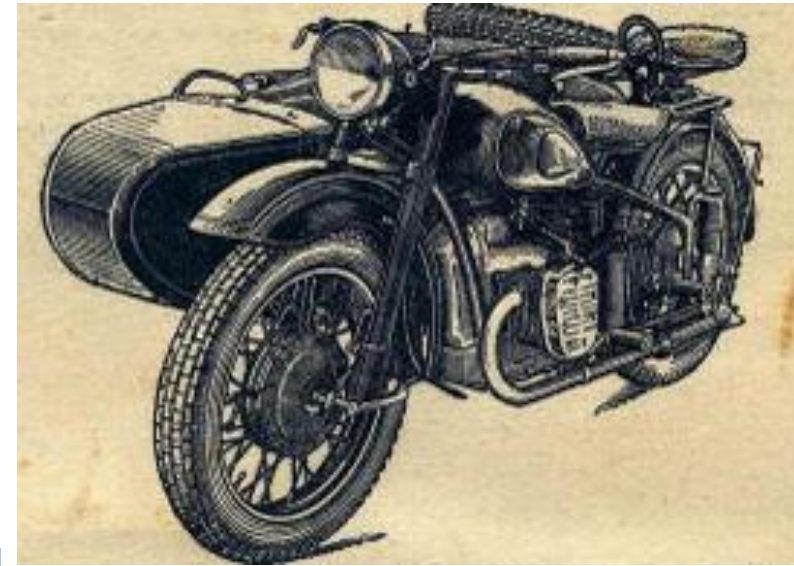
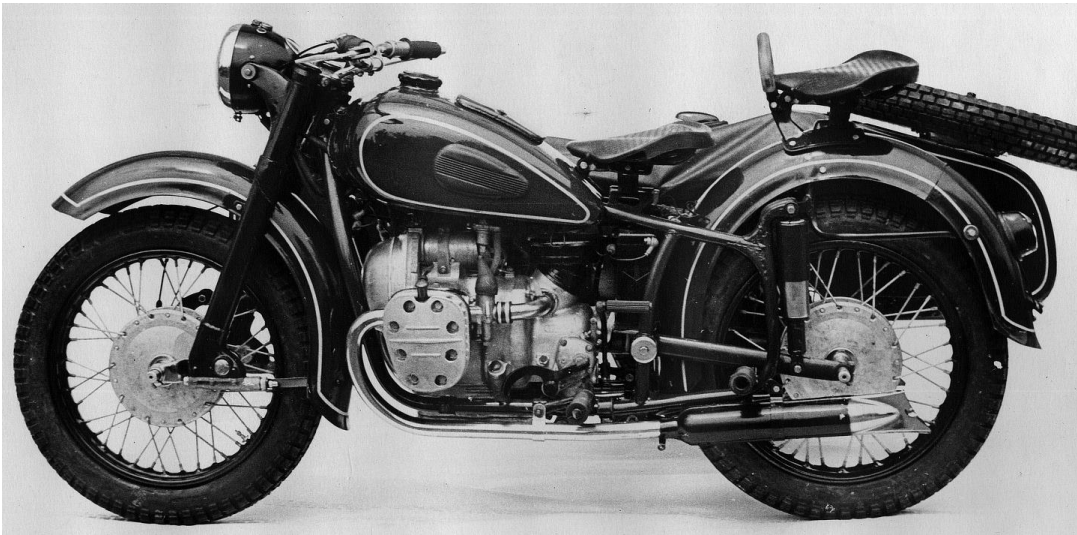
K-750

K-750M



Leading-link front fork is the equivalent of power steering for a sidecar.

Early KMZ / Dnepr K-750: 1958-1963



Notice the BMW Style of Brake / Clutch Lever-Handles on the Early K-750s.



1959

K-750 motorcycle was developed from the M-72N as a more comfortable, powerful and reliable ride. ⁵⁷

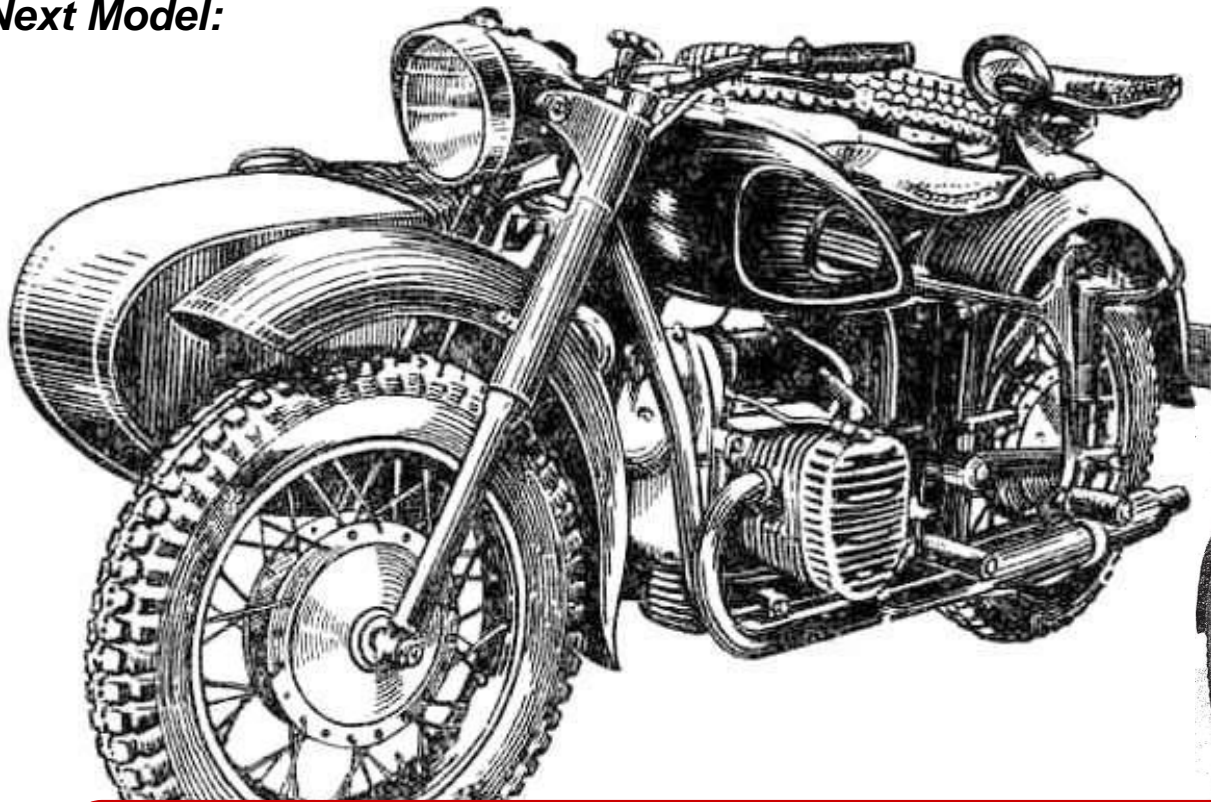
Later KMZ / Dnepr K-750B: 1963-1965



The K-750 was the 1960's replacement of the M-72, as the primary Soviet military motorcycle.

KMZ / Dnepr K-750M: 1965-1977

- **Most Plentiful of the K-750's**
- **Changed to Modern Telescopic Forks**
- **Conventional Clutch/Brake Handlebar Levers**
- **Solid Rear Fender**
- **Frame Extended to Accommodate Dneprmatic Gearbox on the 2WD MB-750's**
 - **No K-750 Left the KMZ Factory with This Gearbox Installed, But Many Soviet Bikes Were Later Retro-Fitted with Either Early Version (with Air Filter Mount Cast into Gearbox), or Later Version (with Plastic Canister Mount)**
- **Next Model:**



The front fork arm was replaced by a telescopic fork with a large travel and a double shock absorber

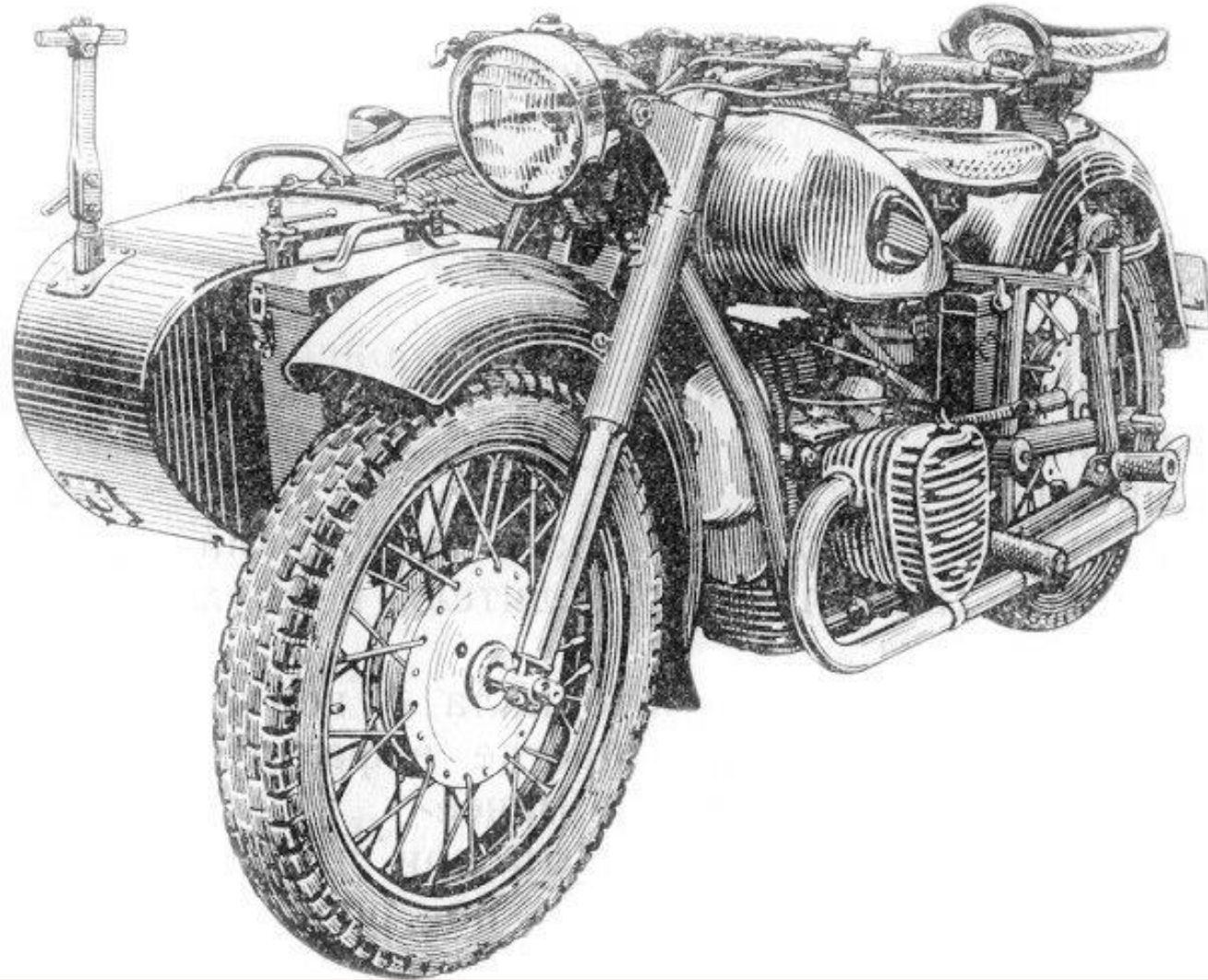
KMZ / Dnepr K-750M: 1965-1977



The K-750M was built for the military, with the 7210171-B fuel tank.

KMZ / Dnepr MB-750 (MW-750): 1964-1973

- ***Side-Valve Engine from K-750***
- ***Modification of K-750 with Two-Wheel Drive (2WD), with Switchable Differential***
- ***BMW-type Brake / Clutch Levers***



In 1964 KMZ introduced a military model, the MB-750 with a differential two-wheel drive (2WD) to the sidecar wheel.

KMZ / Dnepr MB-750 (MW-750): 1964-1973



1966



1969



1968

Notice the *BMW-type brake / clutch levers*, present on early K-750s.

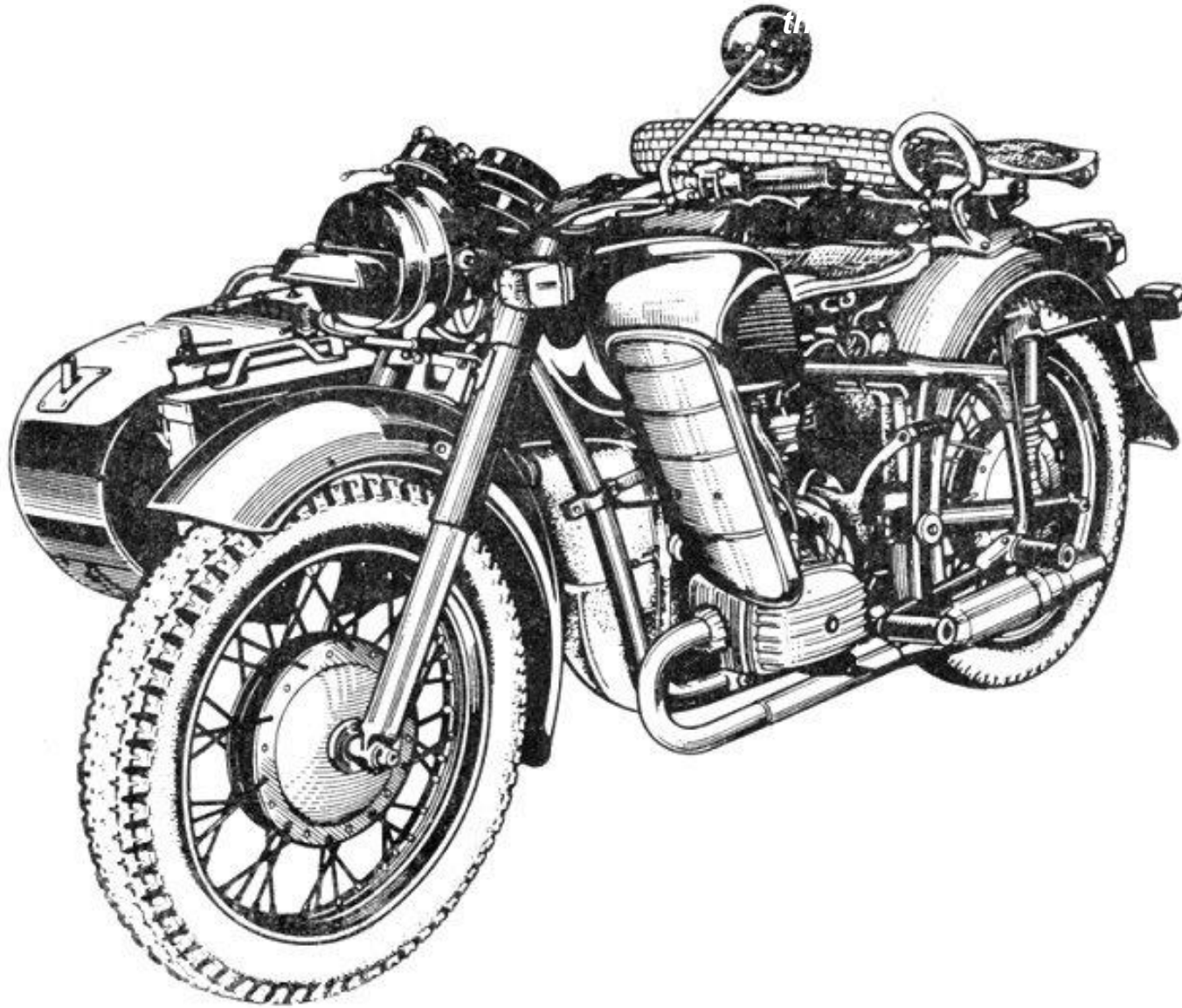
KMZ / Dnepr MB-750M (MW-750M or MV-750M): 1973-1977

- **Rarity**
- **Military Version of Civilian MT-12**
- **Side-Valve (SV) Engine**
- **Early 2WD MB-750M's Built on Older Style Frames with Toolbox Fuel Tanks**
- **Full-Time 2WD (note the lack of a lever), Locking Differential**



Notice the non-aerodynamic fuel tank, similar to the MT-12.

KMZ / Dnepr MB-650 (MW-650): 1971-1973

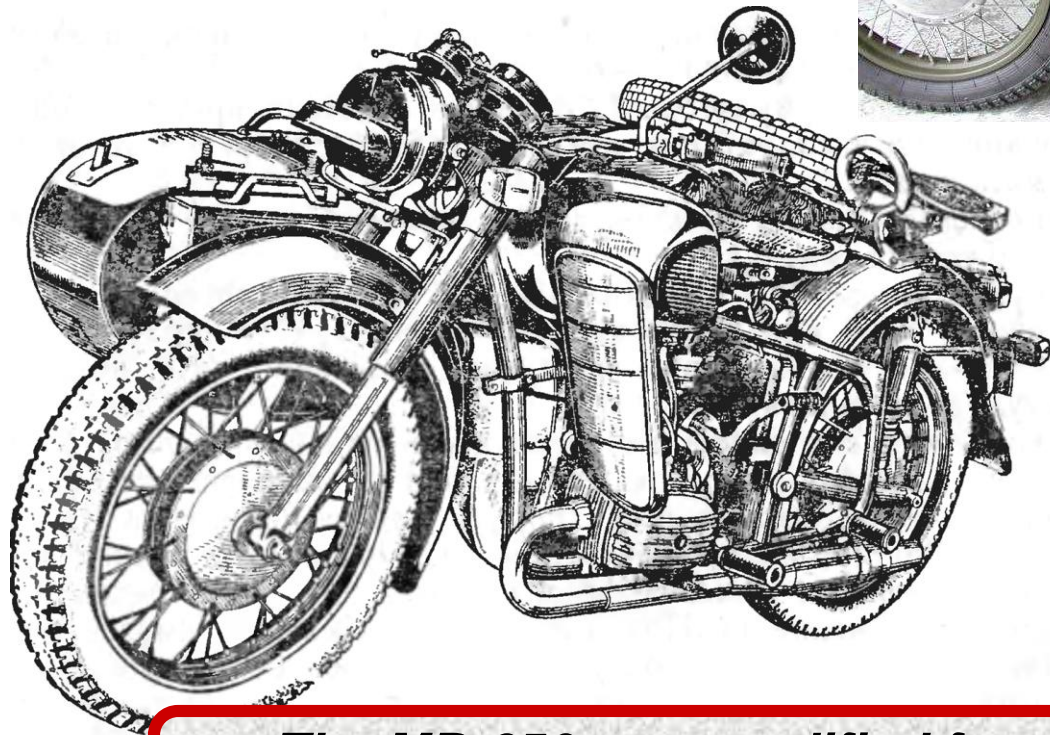


The MB-650 was built for the military with a non-aerodynamic fuel tank.

KMZ / Dnepr MB-650 (MW-650): 1971-1973



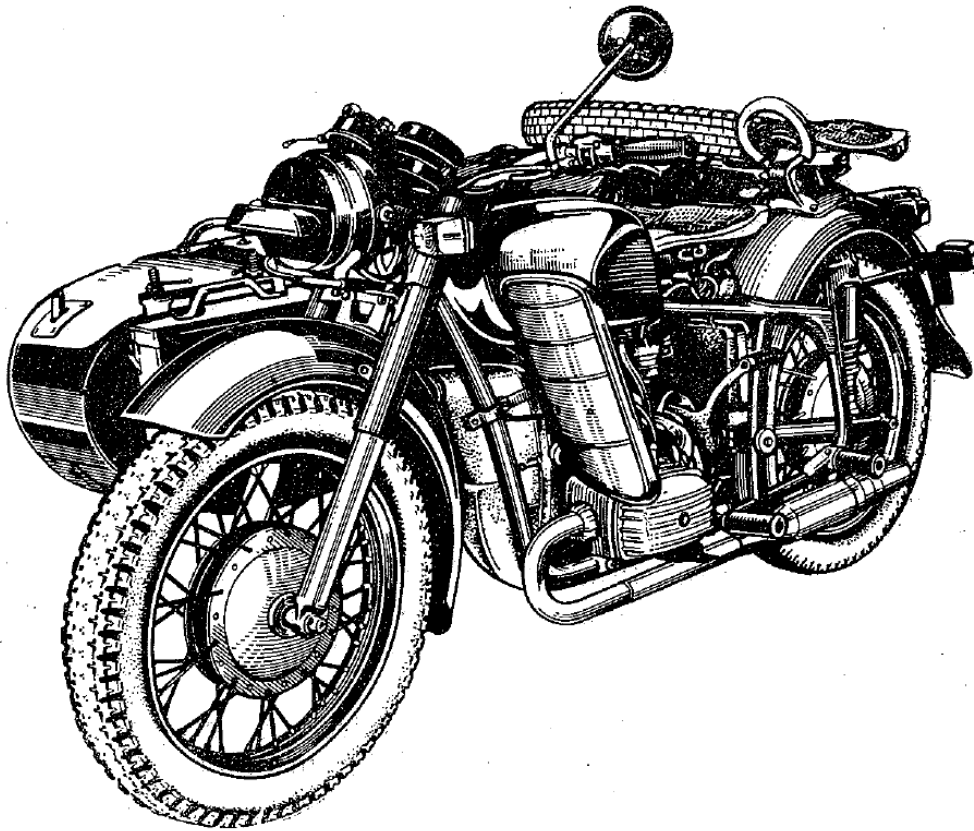
KMZ / Dnepr MB-650M (MW-650M): 1973-1984



The MB-650 was modified for civilian use and became the MB-650M, and later the MB-650M1 and the MB-650M2. ⁶⁶

KMZ / Dnepr MB-650M1: 1985-1995

- Used Dnepr 11 (MT10.32) Engine
 - MB-650M2 Used MT10.36 Engine
- Military Version of the MT-16
 - 2WD but with Differential Lock
- Next Model: KMZ Factory Closed



KMZ / Dnepr K-650 / MT-8: 1967-1971

- ***Typically Referred Only as K-650***
- ***Basically a K-750 with New 650cc OHV engine***
 - ***Overhead Valves, Crank, Lubrication System***
 - ***Unlike Earlier SV Engines with Roller Bearing Crankshafts, Engine Used Sleeve Bearing Crankshaft***
 - ***Aluminum Cylinders with Cast Iron Liners***
- ***Due to Changes, Motorcycle Was Labeled MT-8***
- ***Replaced by MT-9 (K-650/ MT-9)***



In 1967, celebrating the 50th Anniversary of the October Socialist Revolution, KMZ released their first OHV engine in the Dnepr K-650.

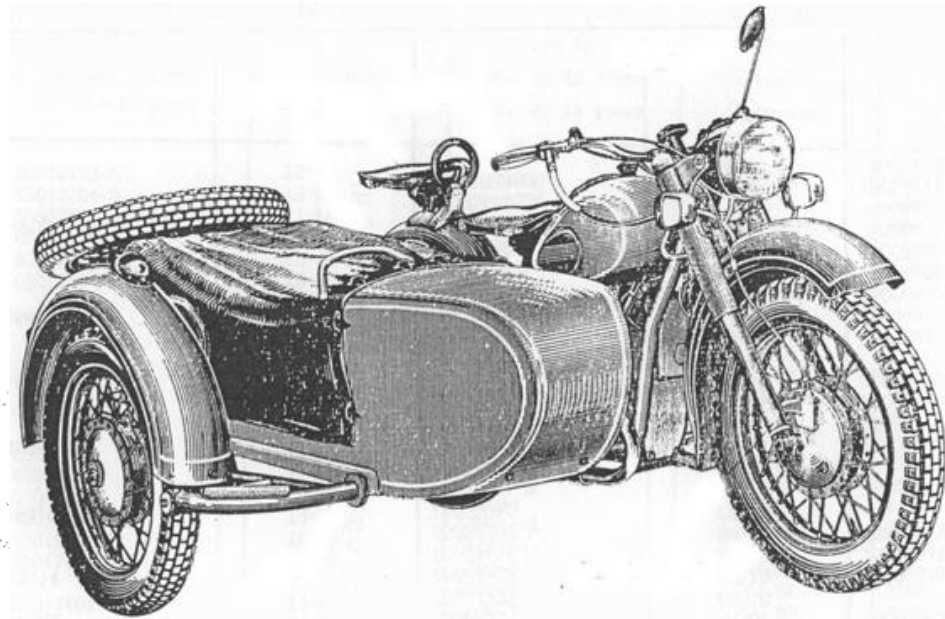
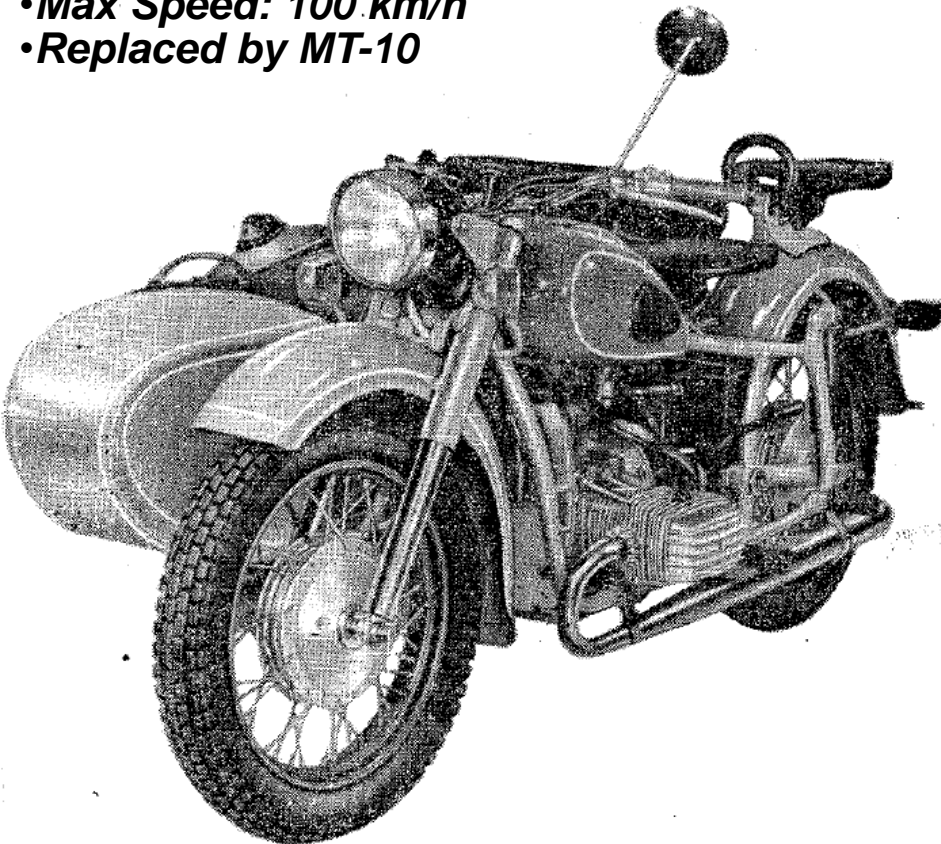
KMZ / Dnepr K-650 / MT-8: 1967-1971



The K-650 / MT-8 used Dnepr's first overhead valve (OHV) engine.

KMZ / Dnepr K-650 / MT-9 (1971-1976)

- ***Previous Model K-650/ MT-8***
- ***Very Little Difference Between K-650 and MT-9***
- ***Improved Transmission:***
 - ***4-speed Gearbox with Reverse***
 - ***Automatic Declutching Mechanism Incorporated into Driver's Foot Pedal***
- ***Added Direction Indicators and High Luminous Efficiency Lights***
- ***Front Fender Has No Side Panels***
- ***Max Speed: 100 km/h***
- ***Replaced by MT-10***



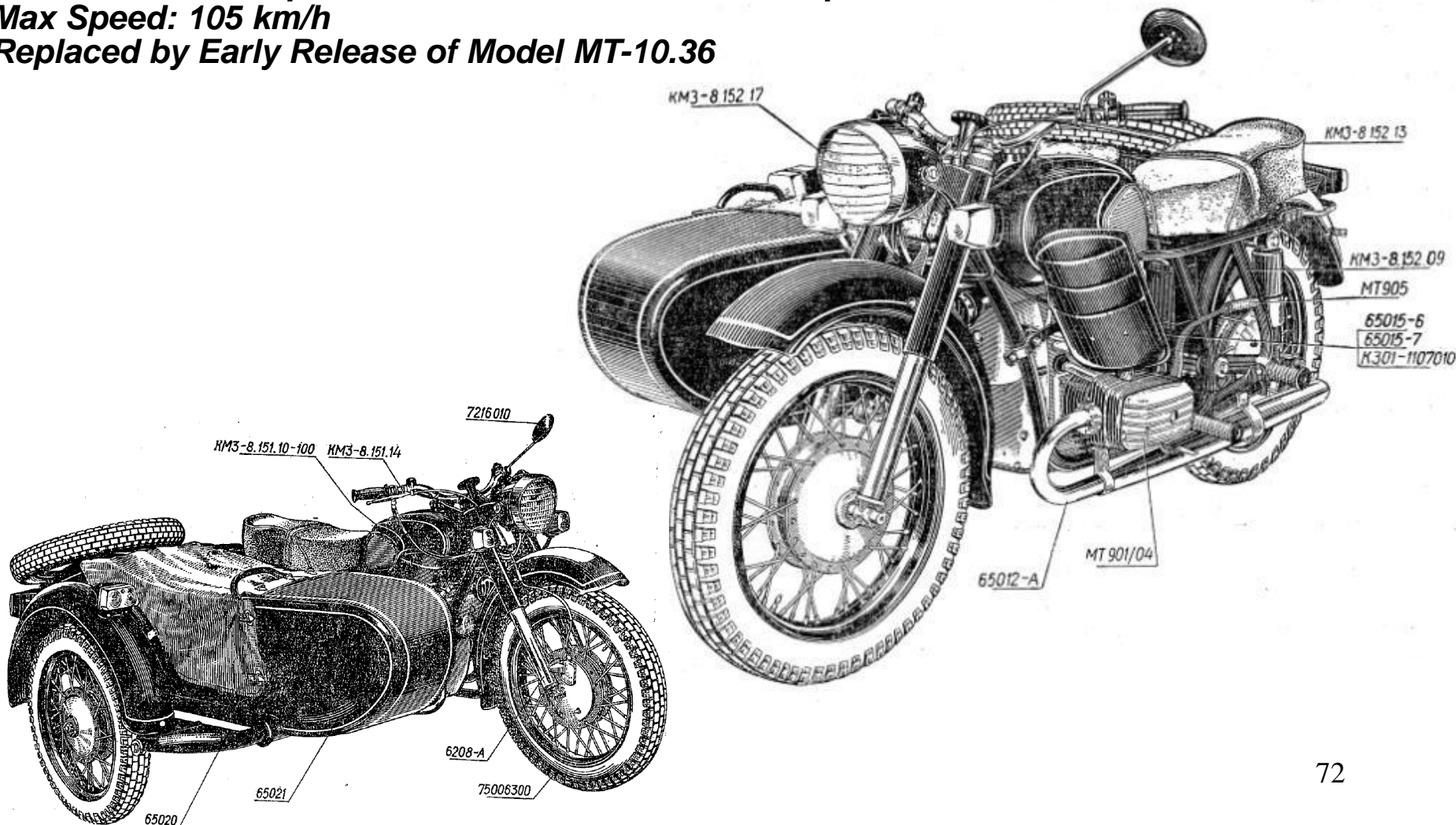
KMZ / Dnepr K-650 / MT-9: 1971-1976



There was very little difference between the K-650 (MT-8) and the MT-9, except the MT-9 usually had a 4-speed "Dneprglide" with automatic declutching and reverse gearbox.

KMZ / Dnepr MT-10: 1975-1984

- **Previous Model: MT-9**
- **First Soviet Motorcycle to Feature 12-Volt Electrics**
- **Solid Padded Seat**
- **New, Increased-Size of "Squat" Fuel Tank with Capacity from 19 liters to 21 liters**
- **MT801 Engine**
 - Increase of Compression Increased Power to 36 Hp
- **Max Speed: 105 km/h**
- **Replaced by Early Release of Model MT-10.36**



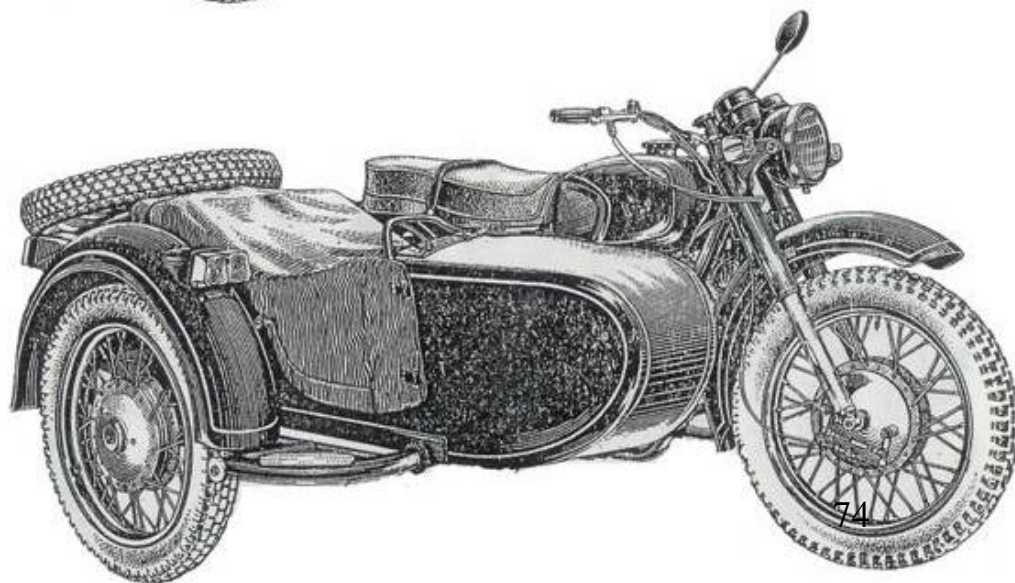
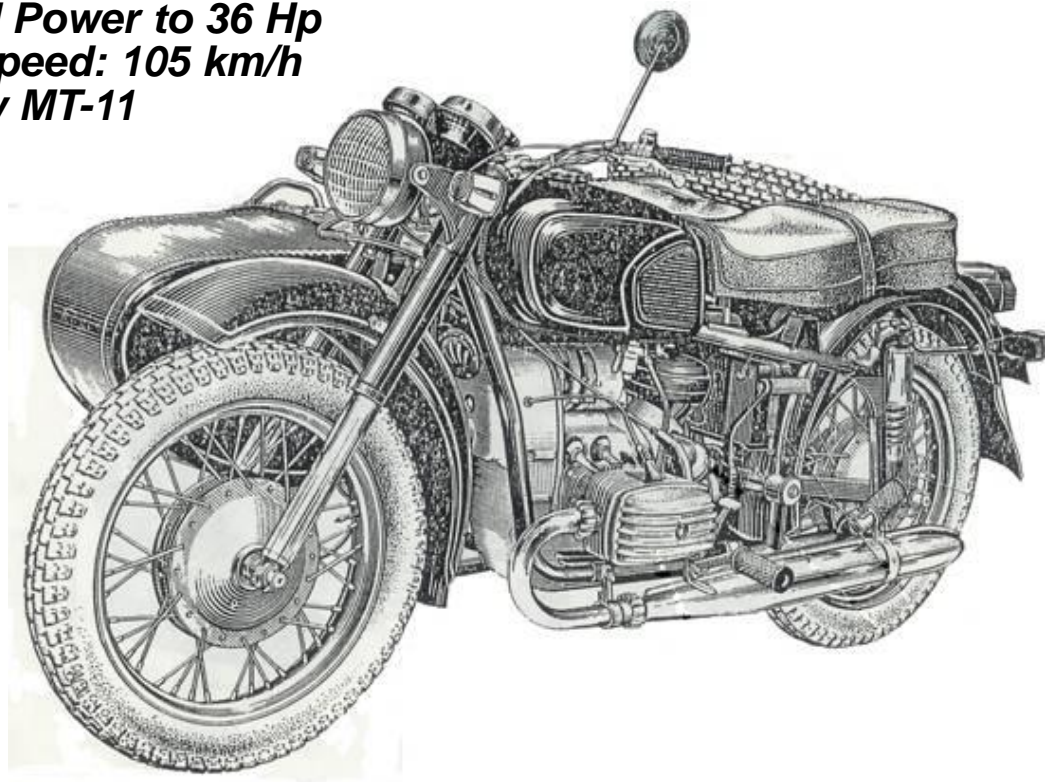
KMZ / Dnepr MT-10: 1975-1984



Dnepr's MT-10 also used the "squat" fuel tank.

KMZ / Dnepr MT-10.36 (1984-1988)

- **Modification of Model MT-10**
- **Increased Compression Ratio (7.5) and New Carburetor (K-301D)**
 - Increased Power to 36 Hp
- **Maximum Speed: 105 km/h**
- **Replaced by MT-11**



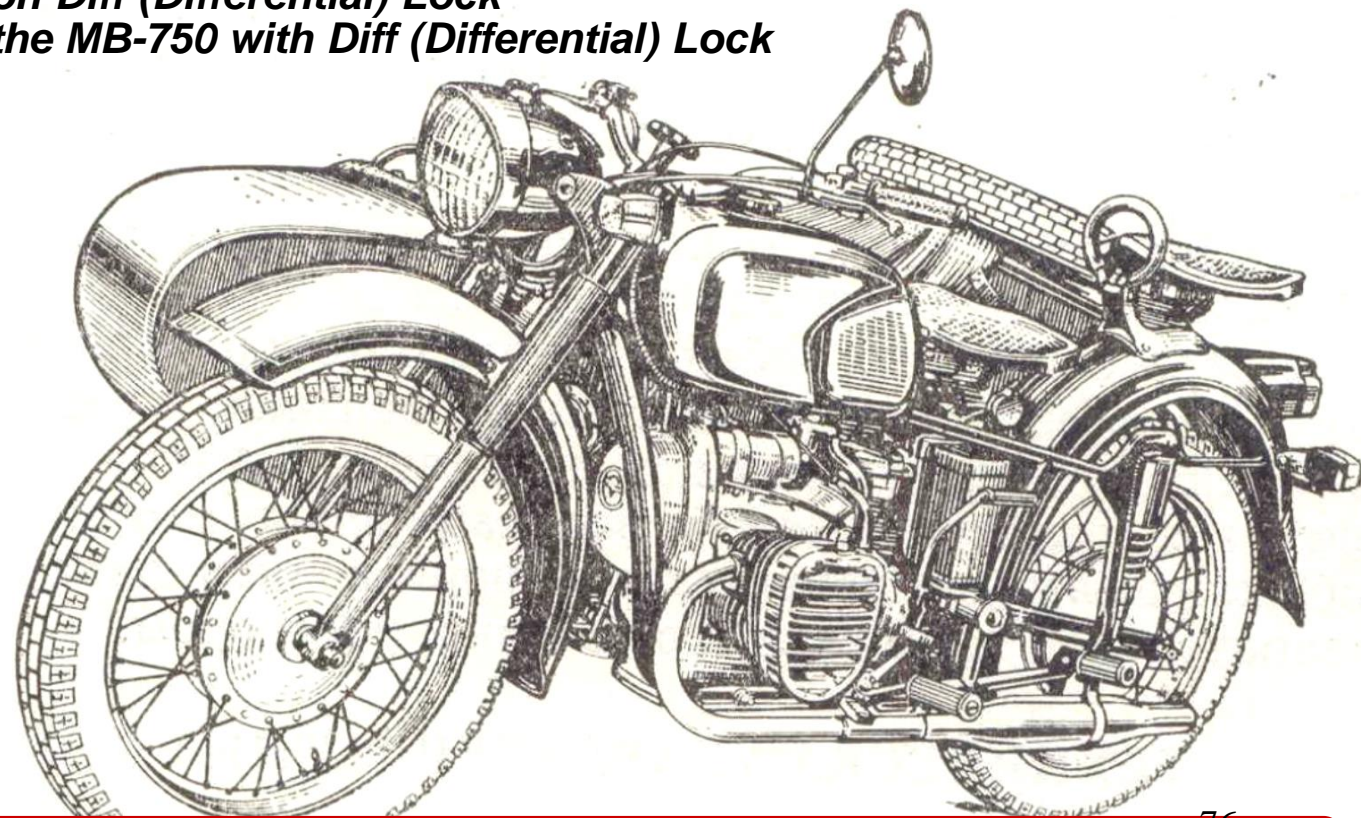
KMZ / Dnepr MT-10.36: 1984-1988



Dnepr's MT-10.36 continued the "squat" fuel tank.

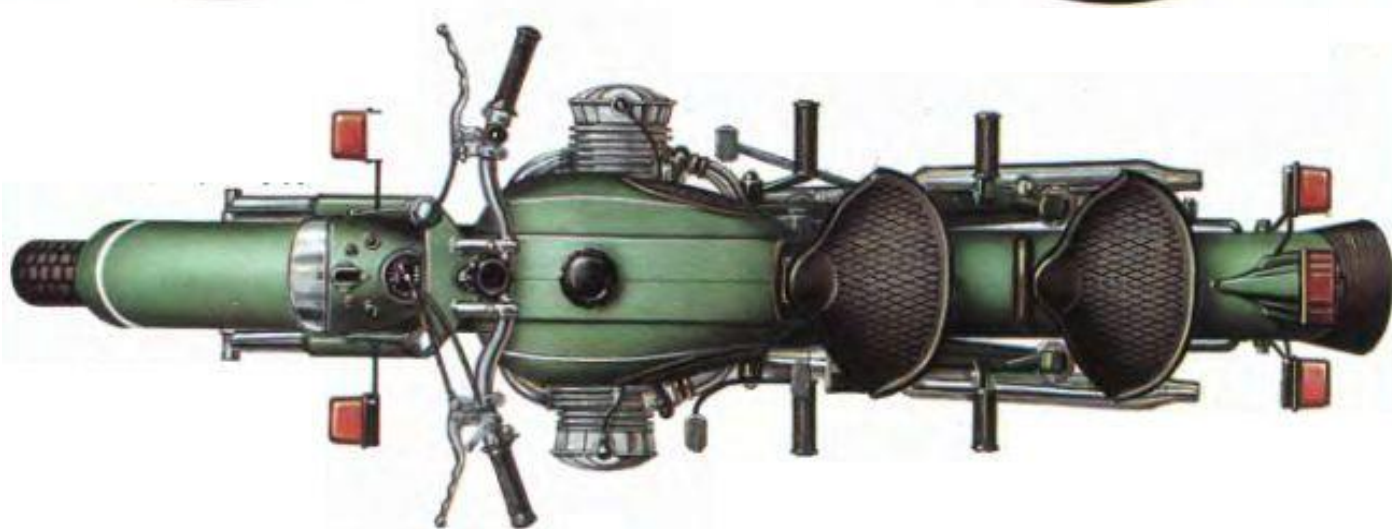
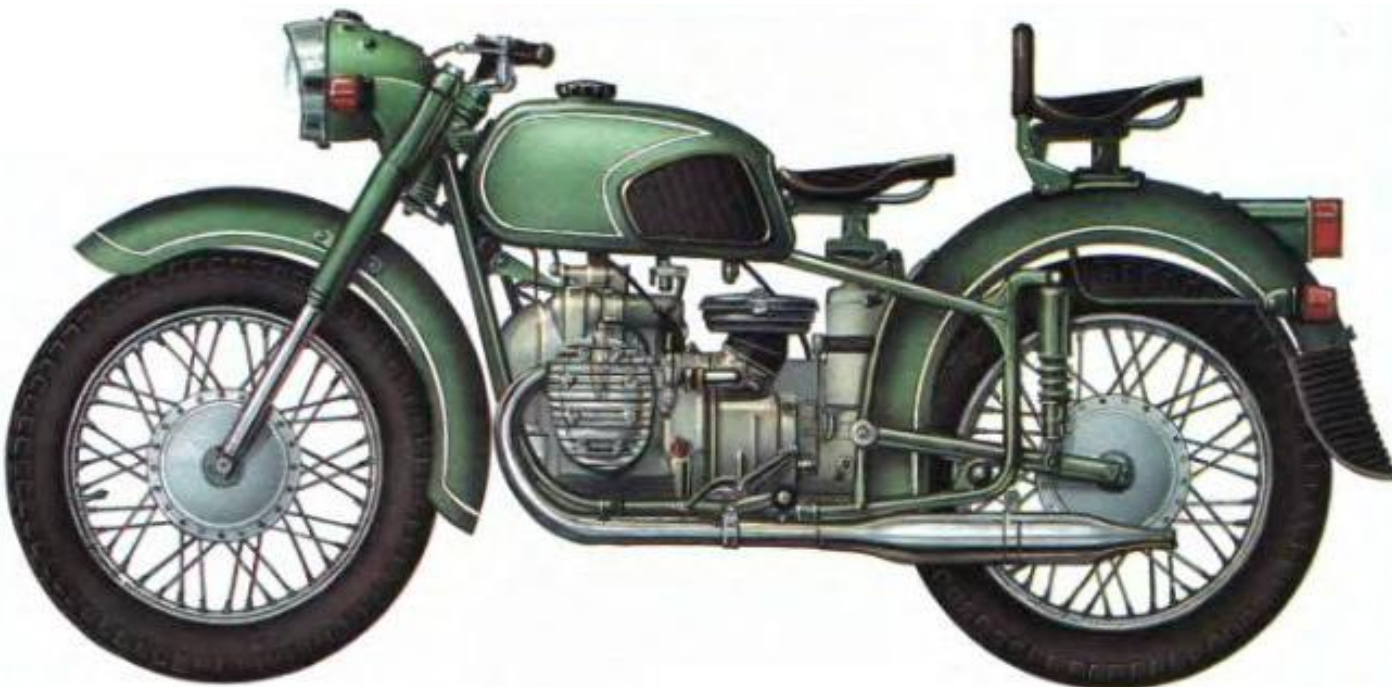
KMZ / Dnepr MT-12: 1974-1985

- **Previous Model: K-750**
- **First Dnepr to Be Called "Dnepr"**
- **Frame Structure and Appearance of the MT-10**
- **Developed from the K-750 with Same Telescopic Forks as 650cc Ural and Dnepr Models, with Swing-Arm Rear Suspension**
- **2WD Model Built on Newer Frame with Older Side-Valve (SV) Engine.**
 - **K-750M Engine, Old Side-Valve (SV) Design**
 - **Sidecar Wheel Drive thru Split Torque Differential**
 - **Based on WW-II BMW R75 System**
 - **Civilian Model with Non-Diff (Differential) Lock**
 - **Military Version Was the MB-750 with Diff (Differential) Lock**

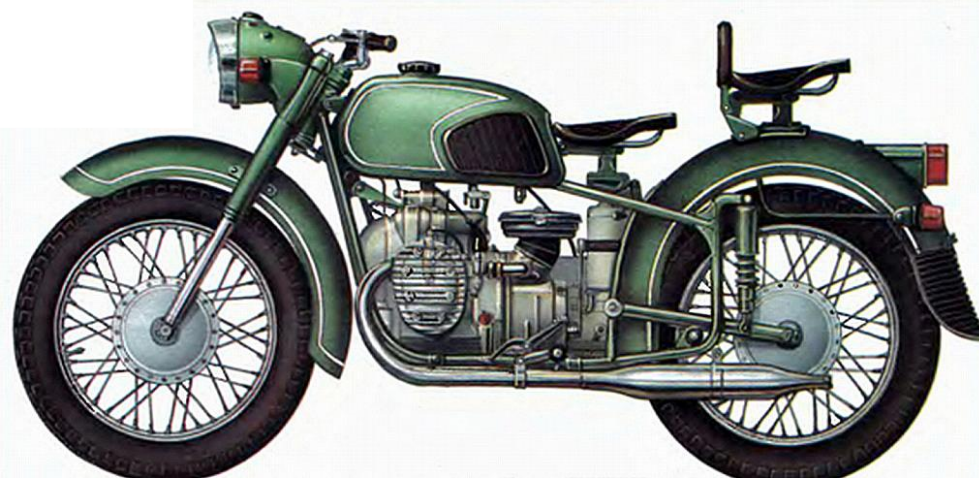


The MT-12, the first to be called a "Dnepr", was developed from the K-750.

Днепр МТ-12 (ДНЕПР-12)



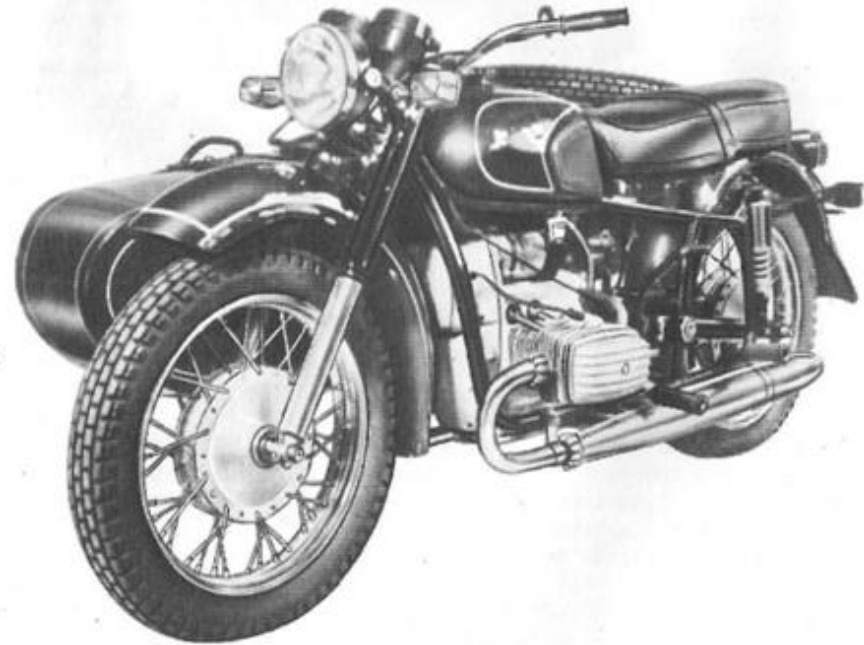
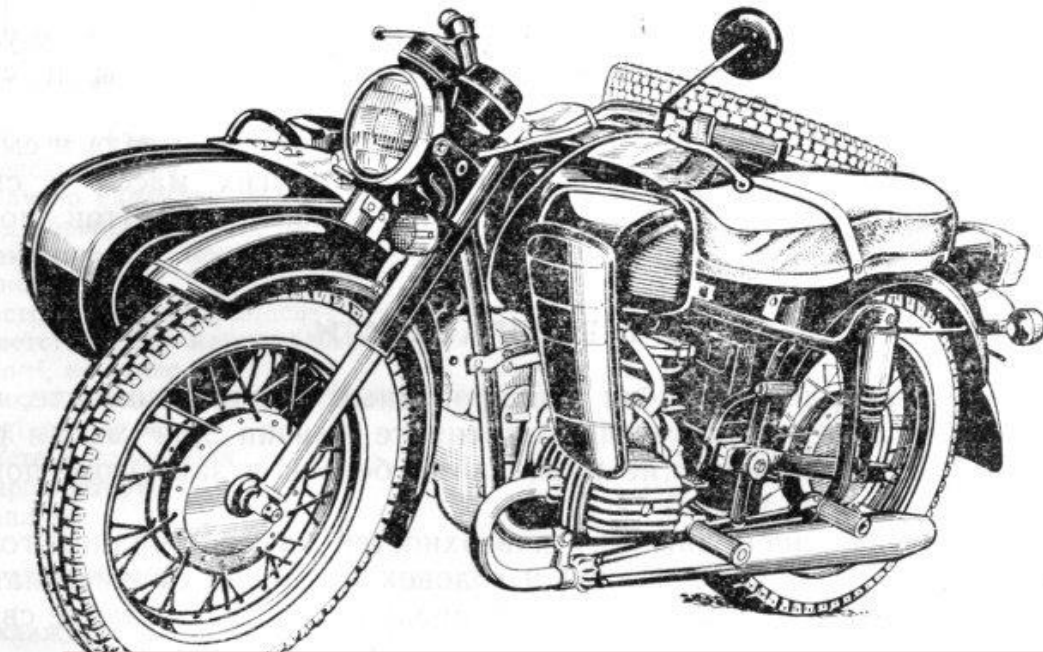
KMZ / Dnepr MT-12: 1974-1985



The MT-12 was the civilian model and the military version was the MB-750.

KMZ / Dnepr MT-11: 1985-1995

- ***Previous Model: MT-10.36***
- ***Designation for MT-11: CMH-8.155***
- ***MT10-32 Engine (650cc): 32 Hp, Modernized, Increased Power at Low Revs***
- ***Most Popular Model from Kiev Factory***
- ***Probably the Only Civilian-Use Model***
- ***Brake on Sidecar Wheel***
- ***Improved Oil Pump and Camshaft***
- ***Upgraded Components: Carburetors, Pistons, Piston Rings, Sidecar, Air Filter with Paper Filter Element, Silencers (Mufflers)***
- ***MT-11 is 1WD, MT-16 is 2WD (Driven Sidecar Wheel), Otherwise Identical***
 - ***MT-11 Sidecar Wheel Has More Lead, as Sidecar Frames Are Different***
- ***Next Model: KMZ Factory Closed***



The MT10-32 engine was used in Dnepr's MT-11 and MT-16.

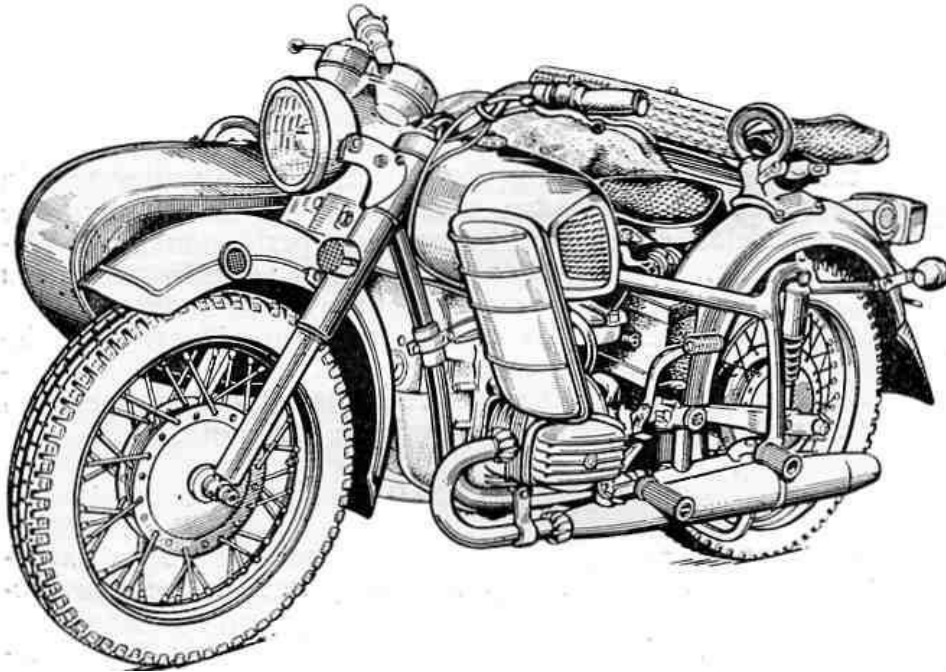
KMZ / Dnepr MT-11: 1985-1995



The MT-11 was the successor of the MT-10.36, with the same squarish fuel tank.⁸⁰

KMZ / Dnepr MT-16: 1986-1995

- ***Previous Model: MT-10.36***
- ***Designation for MT-16: CMH-8.922***
- ***MT10-32 or MT10-36 Engine (650cc)***
- ***Redesigned with Sidecar, Tachometer and 18" Wheels***
- ***Next Model: KMZ Factory Closed***



Dnepr's MT-16 also had the same squarish fuel tank.

KMZ / Dnepr MT-16: 1986-1995



Dnepr's MT-16 2WD (two-wheel drive).