Ural (Урал) - Днепр (Днепр) Russian Motorcycle Part XVI: Steering Column Lock Evolution (Замок рулевой колонки) and Motorcycle Frames

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Agenda for Steering Column Locks

• What Is a Steering Column Lock?
  – Keyed security device to lock the front fork to prevent theft
  – Also known as a Front Fork Lock

• Do I Want to Replace It?
  – Better not to have one. It'll get stuck in the locked position and then you're screwed. It isn't a quality, precision piece. You have to be very gentle with them and keep them oiled/graphited.

• Why Not Use the Fork Lock?
  – Let us just say it brings new meaning to the term RPOC and has a very disconcerting habit of locking and never unlocking again until it is drilled out.
  – One Very Unsatisfied Customer: Not anymore. Forgot to unlock it one day and pulled away. I was on my ass before I knew it. That was the first time I crashed. Plus, I hated carrying two keys (ignition + steering lock).

• What Is a Neiman Lock?
  – Fore-Runner of Steering Column Lock
  – Typically used by BMW owners
  – Inventor Abram Neiman

• Which Models of Ural or Dnepr Sidecars Had Steering Locks?
  – If your frame has a sleeve and a hole in the left-hand side of the steering neck, then you have one.

• Are Steering Locks Offered Today on Russian Sidecar Motorcycles? No

• Frame Review

• Steering Lock in Russian (Ural, Dnepr)
  – Замок рулевой колонки (Урал, Днепр)
German BMW's R71 was the father of Russian M-72. Notice the keyhole on the upper fork cross-brace.
Upper Fork Cross Brace for BMW R71

The steering column casting for the German R71 had the possibility of a locking mechanism.
The keyhole opening ends up as a circular hole on the bottom-side of the front yoke bridge, but still no clue of remainder of lock.
The upper yoke part # for the Russian M-72 is 7208153. No indication of a steering column locking mechanism.
Interestingly, the earliest Russian M-72s, derived from the German BMW R71, had a keyhole on the upper front fork yoke.

M-72 ZIS
(ZIS: the oldest model of the M-72, an exact copy of the BMW R-71)
(moto-boxer.com)
Set of Two Front Fork Yokes M-72 ZIS (7208153 ЗИС)

ZIS is the oldest model of the M-72, an exact copy of the BMW R-71.

No Machined Access Between the Keyhole and the Steering Column 7208153

No Machined Hole in the Steering Column (7208153) for Locking

Set of Two Front Fork Yokes for First Versions of M-72 (ZIS, 3NC).
List Price: 492.00€
(moto-boxer.com)
Upper Yoke Transverse of M-72

Other copies of the yoke transvers show a completely machined keyhole.
The part # on the bottom-side of the front yoke bridge is Russian 7208153 ЗИС (ZIS). The keyhole was present on M-72s before 1952.
Some More M-72 Front Fork Yoke Bridges

Keyhole Plugged Up and Not Machined
No keyhole is present in later versions of Ural or Dnepr upper bridge.
Conclusions on Early Column Locking in Russian M-72

- Early M-72 Castings of Front Fork Yoke Bridge Have Keyhole
- Some Versions Machined the Keyhole
- Steering Column Locking Feature Never Used
- Keyhole in Upper Yoke Casting Discontinued by 1955
  - Probably Around 1952

Now that the yoke keyhole has been examined, we will continue to the actual implementation of steering column locking from a keyhole sleeve on the left side of the chassis near the front of the fuel tank.
1973 BMW R75/5 Motorcycle

Notice Hole in Steering Column Bar for “Locking” Wedge

Sleeve for Steering Lock

Lock Installed in Sleeve for Steering Lock

Neiman Lock

Notice Hole in Steering Column Bar for “Locking” Wedge
Ural / Dnepr Received Its Heritage from BMW

87 BMW K 75 K75 FORK SET

Notice Hole in Steering Column Bar for “Locking” Wedge

15 BMW R75/5 Front Fork

Notice Hole in Steering Column Bar for “Locking” Wedge

BMW R75/6 R100 R80 Forks Triple Clamp Front End

Notice Hole in Steering Column Bar for “Locking” Wedge

BMW /5 Front Fork
(1970-73 R50, R60, R75)
Ural / Dnepr Received Its Heritage from BMW (cont.)

Notice Hole in Steering Column Bar for “Locking” Wedge

Sleeve for Steering Lock
(on a BMW, it's lower on the neck than a Ural or Dnepr)

Notice Hole in Steering Column Bar for “Locking” Wedge
A special locking rod is used which, when the key is turned, extending from the lock case and falls into a special groove in the steering column.
BMW Motorcycle Fork Locks by Neiman

- Steering Column (Fork) Lock Also Known as Neiman Lock
- Anti-Theft Lock Invented by Abram Neiman
- BMW Motorcycles Came with Two (three after ‘73) Factory Keys
- Keys Are Steel and Made by Neiman
  - Hard to Get Real Blanks in U.S.
  - Most Locksmiths Won’t Cut Steel Keys
- On New Bike Delivery, BMW Emphasized Importance of Keys
  - Showed How to Lock the Fork
  - Repeated the Process Several Times
  - Held the Forks, So Customers Couldn’t Snap Lock Off by Turning the Fork

Several brands of motorcycles and motor-scooters use Neiman security locks. One store that sells Neiman Locks is Bevel Heaven (store.bevelheaven.com).
Ural / Dnepr Front Fork, Steering Column Locks

Steering Lock with Keys RT 125
Suitable for many MZ models
Length: 50 mm, Bore: 14 mm
Product No.: S4158
List Price: €13.99 set
(www.ural-zentrale.de)

Steering Lock with Keys
Vendor ID: 200833869206
List Price: €24.00 set
(www.ebay.com)

Steering Lock with Keys
(diameter 20 mm)
(Dnepr)
Part #: KMZ-8.15209510
List Price: 312 CZK set
(shop.ural.cz)

Front Fork lock
Vendor ID: 001.458
List Price: €24.20
(www.oldtimergarage.eu)

Steering Column Lock
Vendor ID: 190513056349
List Price: €20.00
(www.ebay.de)

Steering Lock with Keys
Part #: KMZ-8.15209510 + KMZ-8.15209519
Vendor ID: 1636
List Price: €22.14 set
(moto-boxer.com)

Front Fork Lock

Threaded Hole for Gas Tank Flange
### Ural (Урал) / Днепр (Днепр) Steering Column Locks

<table>
<thead>
<tr>
<th>Ural (Урал) Model</th>
<th>Military / Civilian</th>
<th>Production</th>
<th>Engine</th>
<th>Frame (Рама)</th>
<th>Steering Lock</th>
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<tbody>
<tr>
<td>M-72</td>
<td>Military</td>
<td>1941-1950</td>
<td>750cc SV</td>
<td>7209147</td>
<td>No</td>
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<tr>
<td>M-72M</td>
<td>Military</td>
<td>1956-1961</td>
<td>750cc SV</td>
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<td>M-61</td>
<td>Civilian</td>
<td>1957-1961</td>
<td>650cc OHV</td>
<td>6309007</td>
<td>No</td>
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<tr>
<td>M-62 (Ural-1)</td>
<td>Civilian</td>
<td>1961-1965</td>
<td>650cc OHV</td>
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<td>No</td>
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<tr>
<td>M-63 (Ural-2)</td>
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<td>1965-1971</td>
<td>650cc OHV</td>
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<tr>
<td>M-66 (Ural-3)</td>
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<td>1971-1973</td>
<td>650cc OHV</td>
<td>6309007</td>
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<tr>
<td>8.103 &amp; 8.107 Series “650”</td>
<td>Civilian</td>
<td>1984-2002</td>
<td>650cc OHV</td>
<td>IMZ-8.103-09007</td>
<td>Yes</td>
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<tr>
<td>“750”Series</td>
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<td>2003-Present</td>
<td>750cc OHV</td>
<td>IMZ-8.1037-09007 until 2007</td>
<td>Yes / No</td>
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<table>
<thead>
<tr>
<th>Днепр (Днепр) Model</th>
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<th>Production</th>
<th>Engine</th>
<th>Frame (Рама)</th>
<th>Steering Lock</th>
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<tbody>
<tr>
<td>M-72 (1WD)</td>
<td>Military</td>
<td>1951-1956</td>
<td>750cc SV</td>
<td>7209147</td>
<td>No</td>
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<tr>
<td>M-72N (H) (1WD)</td>
<td>Military</td>
<td>1956-1959</td>
<td>750cc SV</td>
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<td>Yes / No</td>
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<tr>
<td>K-750 (1WD)</td>
<td>Military</td>
<td>1958-1963</td>
<td>750cc SV</td>
<td>5309100 short, 65009100 long for rev. gearbox</td>
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<td>K-750B (1WD)</td>
<td>Military</td>
<td>1963-1965</td>
<td>750cc SV</td>
<td>5309100 short, 65009100 long for rev. gearbox</td>
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<td>K-750M (1WD)</td>
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<td>1963-1977</td>
<td>750cc SV</td>
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<td>MB-750 (2WD)</td>
<td>Military</td>
<td>1964-1973</td>
<td>750cc SV</td>
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<td>MB-750M (2WD)</td>
<td>Military</td>
<td>1973-1977</td>
<td>750cc SV</td>
<td>ВП09700</td>
<td>No</td>
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<tr>
<td>K-650/MT-8 (1WD)</td>
<td>Civilian</td>
<td>1967-1970</td>
<td>650cc OHV</td>
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<td>K-650/MT-9 (1WD)</td>
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<td>1971-1974</td>
<td>650cc OHV</td>
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<td>MT-10 (1WD)</td>
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<td>1974-1976</td>
<td>650cc OHV</td>
<td>КМЗ-8.152100</td>
<td>Yes</td>
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<td>MT-10.36 (1WD)</td>
<td>Civilian</td>
<td>1975-1987</td>
<td>650cc OHV</td>
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<td>Yes</td>
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<td>MB-650 (2WD)</td>
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<td>1976-1984</td>
<td>650cc OHV</td>
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<td>MB-650M (2WD)</td>
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<td>1985-1991</td>
<td>650cc OHV</td>
<td>65009100</td>
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<td>MB-650M1</td>
<td>Military</td>
<td>1991-1995</td>
<td>650cc OHV</td>
<td>65009100</td>
<td>No</td>
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<tr>
<td>MT-12 (Dnepr-12) (2WD)</td>
<td>Civilian</td>
<td>1974-1984</td>
<td>750cc SV</td>
<td>ВП09700</td>
<td>Yes</td>
</tr>
<tr>
<td>MT-11 (Dnepr-11) (1WD)</td>
<td>Civilian</td>
<td>1985-1995</td>
<td>650cc OHV</td>
<td>КМЗ-8.15509100</td>
<td>Yes</td>
</tr>
<tr>
<td>MT-16 (Dnepr-16) (2WD)</td>
<td>Civilian</td>
<td>1986-1995</td>
<td>650cc OHV</td>
<td>КМЗ-8.92209100</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Dnepr M-72 N (H) w/ Lock on Steering Column
The basic frame started with the M-72, a copy of the German R71. The swing-arm frame was introduced on the M-62 to improve performance over country roads.
Dnepr paralleled Ural’s development in frames.
Dnepr M-72: No Steering Column Lock

Front Fork Yoke: 7208153

Steering Column Bar
Part #: 7208151
(M-72, K-750)

No Lock Sleeve on Neck of M-72 Frame

Hole for Gas Tank Flange, But No Key Sleeve
Ural’s M-72 M had no steering column lock.
The oblong or round hole near the top of the steering column bar is designed to receive the movable wedge of the steering lock.
Fork Bridge for Dnepr K-750

Upper Yoke Bridge (Traverse)

Round Locking Hole

Fork Bridge, K-750
List Price: 40€
(www.ural-hamburg.de)
Steering Column Bar for M-72

Steering Column Bar for a Ural / Dnepr
Vendor ID: 003.865
List Price: 34.00€
(www.oldtimergarage.eu)

Steering Column Bar
Part #: 7208151
Fits: M-72, K-750, Ural Oversize
Vendor Item: 000.323
(www.oldtimergarage.eu)

Later steering column rods had no locking mechanism.
1992 Motorcycle Steering Column Stem with Bridge Traverse

Ural Dnepr Motorcycle Steering Column Stem with Bridge Traverse
List Price: $120.00
Ural 1992 release
p://www.ebay.ca/it
No locking mechanism is seen on Dnepr’s K-750 front fork.
Dnepr K-750 / K-750M: No Steering Column Lock

Frames: K-650 - K-750
5309100, short
65009100, long for Reverse Gearbox

Steering Column Bar
Part #: 7208151
(M-72, K-750)

K-750 Front Fork
(No Hole in Steering Column Bar)
Dnepr MB-750: No Steering Column Lock

Drawings show that Dnepr’s MB-750 did not have a steering column lock.
Drawings show that Dnepr’s K-650 / MT-8 did not have a steering column lock.
Drawings show that Dnepr’s K-650 / MT-9 did not have a steering column lock.
One way to determine if you have a MB-650 or a MT-8/MT-9 frame is to look at the frame steering head. Civilian bikes have a housing (sleeve) for a steering lock, while the military bikes do not. If the frame has a part welded onto the top left of the steering head, or if it has a hole in this location about 1/2 inch in diameter (someone hack-sawed off the sleeve), it is a civilian frame.
Photos show that Dnepr’s MB-750 did not have a steering column lock.
Dnepr MT-10: Steering Column Lock?

Can’t See on the Left Side
Steering Column Lock
Dnepr MT-10.36: Steering Column Lock

Lock Sleeve on Neck of M-10.36 Frame

Front Fork

Steering Lock:
1. Steering Column
2. Lock

Frame = Pama in Russian
Steering Column Lock Sleeve
Another Dnepr (Днепр) МТ-10.36 Frame (Рама) (oppozit.ru)
Dnepr MT-12 Frame

Frame is lying on its right-side, so sleeve is facing up.

Sleeve for steering lock.

Threaded hole for gas tank flange.

Steering lock with cover.
## MT-11 / MT-16 Frame

KMZ-8.152100 Frame for Bench Saddle
65009100 Frame, Long for Reverse Gearbox

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>MT-11</th>
<th>MT-16</th>
</tr>
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<tbody>
<tr>
<td>KMZ-8.15209519</td>
<td>Key Ring</td>
<td>1</td>
<td>-</td>
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<tr>
<td>KMZ-8.15209516</td>
<td>Key</td>
<td>2</td>
<td>-</td>
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<tr>
<td>KMZ-8.15509100</td>
<td>Frame for MT-11</td>
<td>1</td>
<td>-</td>
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<tr>
<td>KMZ-8.92209100</td>
<td>Frame for MT-16</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>

Frame for MT-16
(Steering Lock Not Shown, But It Exists)

Frame for MT-11
(Steering Lock Clearly Shown)
Блокировка замка
Most of the sleeves for the lock are actually empty. It’s too much of a hassle, with the possibility of locking yourself out or accidentally engaging.
Another Dnepr (Днепр) MT-11 Frame (Рама мотоцикла Днепр МТ-11)
MT-16 Frame (Рама): Steering Column Lock

Mounting Hole for Fuel Tank Flange

Mounting Hole for Fuel Tank Flange

Steering Column Lock Sleeve
MT-16 Frame (Рама): Steering Column Lock

Steering Column Lock Sleeve
Ural’s M-62 did not have a steering column lock.
Ural M-62: No Steering Column Lock
Ural M-63: No Steering Column Lock

Any Steering Column Lock Would Be Found on the Left Neck of the Frame

Threaded Hole for Gas Tank Mounting Flange
Frame Assembly ИМЗ-8.101-09001
Frame Assembly ИМЗ-8.101-09001-10
Motorcycle Frame ИМЗ-8.101-09007
Motorcycle Frame ИМЗ-8.101-09007-10
Ural M-66 (Урал 3): Steering Column Lock

Cover for Steering Lock

Cover for Steering Lock

Cover for Steering Lock

M-66
Even though the stem has a hole for a steering lock, the motorcycle frame may not use it.
The lock on a Ural M-67.36 is part of the steering column.
<table>
<thead>
<tr>
<th>#</th>
<th>Part #</th>
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<tr>
<td>1</td>
<td>IMZ-8.101-09007</td>
<td>Frame Рама</td>
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<td>13</td>
<td>IMZ-8.101-09202</td>
<td>Catch Фиксатор</td>
</tr>
<tr>
<td>14</td>
<td>IMZ-8.101-09205</td>
<td>Spring Пружина</td>
</tr>
<tr>
<td>22</td>
<td>11407</td>
<td>Washer 14 Special</td>
</tr>
<tr>
<td>12</td>
<td>IMZ-8.101-09201</td>
<td>Lock Body Корпус замка</td>
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<tr>
<td>34</td>
<td>252016-П29</td>
<td>Washer 14 Шайба 14</td>
</tr>
<tr>
<td>26</td>
<td>220088-П29</td>
<td>M5x35 Screw Fastening Clamp Lock</td>
</tr>
</tbody>
</table>

Notice the Oblong Hole in the Front Fork Stem (11. Part #6608151 Steering Column Rod)
Ural 650 Parts

Notice the Oblong Hole in the Front Fork Stem (6608151)

Sleeve for Steering Lock

Lock and Key Set
**IMZ (ИМЗ)-8.103-10, 8.103-40, 8.123-10, 8.107** (650cc)

- **Sleeve for Steering Lock**
- **Oblong Hole in Side of Steering Column Stem**

**Front Fork**
Ural IMZ-8.1037-09001 Frame Assembly (www.racewayservicespaa.com)

<table>
<thead>
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<th>#</th>
<th>Part #</th>
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<tr>
<td>2</td>
<td>IMZ-8.1037-09007</td>
<td>Frame</td>
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<td>46</td>
<td>66-16260</td>
<td>Return Spring</td>
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<td>45</td>
<td>66-16086</td>
<td>Anti-Theft Lock</td>
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<td>44</td>
<td>66-16263</td>
<td>Protective Washer</td>
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<td>44A</td>
<td>252573-P27C</td>
<td>Rivet</td>
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<tr>
<td>43</td>
<td>66-16254</td>
<td>Key</td>
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</table>

7. IMZ-8.1037-08011 Steering Column Stem with Bridge
(Stem Has an Oblong Hole, Used with Lock)
Steering Column Lock IMZ-8.103

(MOTOCYCLETTES «URAL» MODELES IMZ-8.103-10, -8.123 GUIDE POUR L’UTILISATION AVTOEXPORT URSS MOSCOU)

- **Anti-Theft Lock with Individual Key on Head Tube of Left-Side of Motorcycle Frame**
- **To Close the Lock:**
  - Turn Handlebars to the Right,
  - Insert Key,
  - Turn Left,
  - Push It Slightly
  - Release and Remove Key
- **To Open:**
  - Insert Key,
  - Turn Left,
  - Pull Gently Toward You,
  - Release and Remove Key

**Cover for Steering Lock**

**Steering Column Lock Sleeve**

**Ural IMZ-8.XXX: Steering Column Lock**

**Cover**

**Sleeve**

**Key**

**Steering Column Lock**
Most modern Urals do not have the steering column lock. Maybe we do learn from history.
- Front Fork Lock
  - Motorcycle Provided with an Individually-Keyed Fork Lock
  - Lock Mounted on Left-Hand Side of the Neck of the Tubular Frame
  - To Lock the Motorcycle
    - Turn Handle-Bar Fully to the Right
    - Insert the Key, Turn It to the Left While Pressing-In Slightly
    - Then Release and Remove the Key
  - To Unlock the Motorcycle
    - Insert the Key
    - Turn It to the Left
    - Pull Gently, Release and Then Remove the Key
  - If the Fork Lock Is Used, It Is Typically Necessary to Wiggle the Steering Fork Back and Forth to Find a Position Where the Lock Will Function Properly

Because the fork lock tends to be stubborn, owners may find it more trouble and less advantage to use than some alternative means of security, such as a cable and padlock or a boot.
Gone is the steering column lock!
2005 Ural Frame Chassis

But, it shows up again!
2005 Ural Motorcycle Gear-Up Frame Chassis

... and again!
To do any procedure on the lock, the cover must be removed first. Here is how to do it.

Having trouble getting at the backside of the lock cover? Just remove the two 13 mm, or 14 mm bolts holding the headlight assembly and let it hang out of the way.

Remove the "boat shaped" chrome steering lock cover. These are the three pieces that will come flying off, so catch them.

1. Do you have the Neiman key?
   Remove the chrome lock cover shown above. Stick the key into the keyhole, turn it to the left till it stops, at about 10 O’clock, wiggle the forks a bit and pull the whole thing out. The spring should shove it out. Easy huh?

   It will look like this.

2. You may be able to pick the lock yourself.
   All else fails, take it to a locksmith.

3. No key and a bare frame.
   This sacrifices the lock, but you don't have a key anyway. Use a drift with a flat end and drive the lock into the frame about 3/8". That will shear off the screw holding the lock. Use a lever down in the steering stem hole and push the lock out.

4. No key and the bike is assembled.
   This is the most common case. One common suggestion is to "drill it out." Never stick a drill into the keyhole and start drilling. You will hit the tumblers made of hardened steel and the drill will break off. Now you do have a problem.

   The fork lock can be removed in one of 4 ways, depending upon conditions.
This is how to do it. This is so slick. It was first suggested to me in 1972, by Bryan Hilton, my genius mechanic. It would help to have the new lock in your possession so that you can examine it carefully to see what is otherwise "hidden" in the frame. The job is so easy though, that you probably can proceed by looking at these photos. Here are two pictures to show the lock.

In the first picture you can see the small screw in the middle of the lock. In the picture from above, you can see the screw sticking out from the round barrel at about 2 O'clock. The part at 12 O'clock is the assembly that holds the tumblers. The idea is to drill a hole into the lock and cut the head of the screw off from underneath. It sounds hard, but is actually quite easy.

Use a sharp center punch to make a dent in the lock at midway between 2 and 3 O'clock. Use a center punch to mark the place for the hole. I use a 1/8" drill bit. The main thing is to aim at the screw that you can't see. Most likely you will only partially cut the screw off. You can drill as far as 7/8" before you will go all of the way through the lock and hit the frame. Don't fret, you can gently tap on the lock and see if it will finish the job. If you can't finish breaking off the screw, then go up to the next size drill bit. You could force/screw a small bolt into the new hole and pull on it, but I have never had to do that.
With the lock out, carefully examine the hole in the frame and remove any metal shards. Carefully turn the forks while peering into the hole and see if the matching hole in the steering stem is narrow or widened out. That is evidence of someone trying to break the lock, as in a botched theft. Upon reassembly, you will find that the "nail" that holds the chrome cover on the lock, will stay in. Just tap it in gently. Rich Thrush said "the new lock mechanism that I ordered did not have the flats on the steel cylindrical portion."

Apparently the new fork locks don’t have the flats machined on the side. The shaft that protrudes into the steering stem is round. It won’t fit into the slot in the stem. Here are some measurements to allow you to fix it. The slot in the steering stem is 0.402" wide and the distance across the flats is 0.292." We can say that an old lock has 0.100" of play. The owner of a new lock will need to grind off enough to go into the stem. I would not make it as small as the 0.292," but only enough to fit. The larger the "slop" the greater chance that someone will try to use that momentum to try to snap it off. The disadvantage is that the larger the lock is, the harder it is to "find" the hole when locking it up. See photos below.