Transmission Operation

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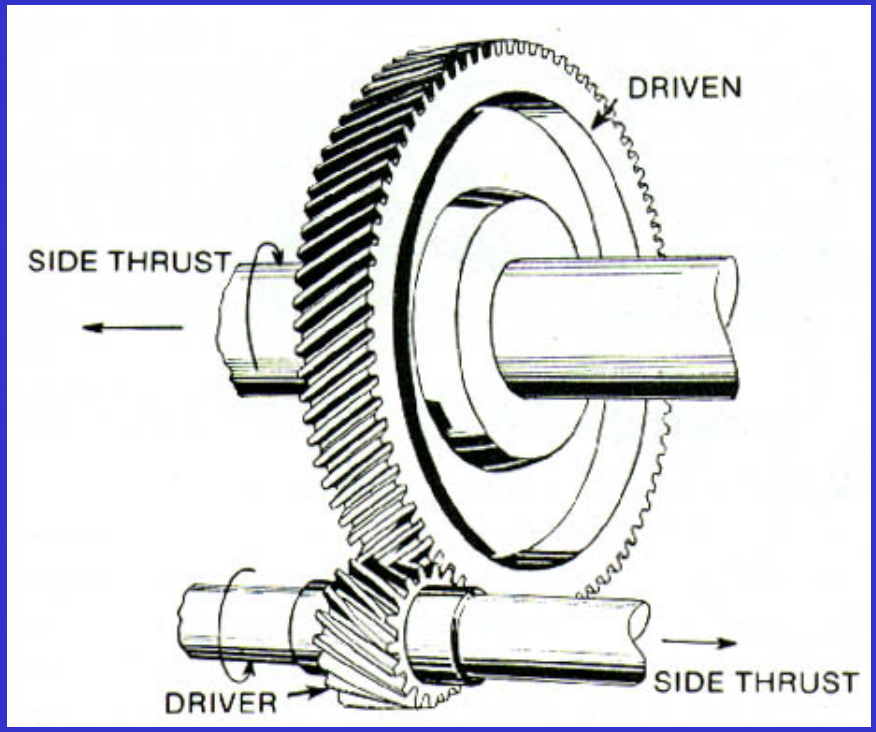
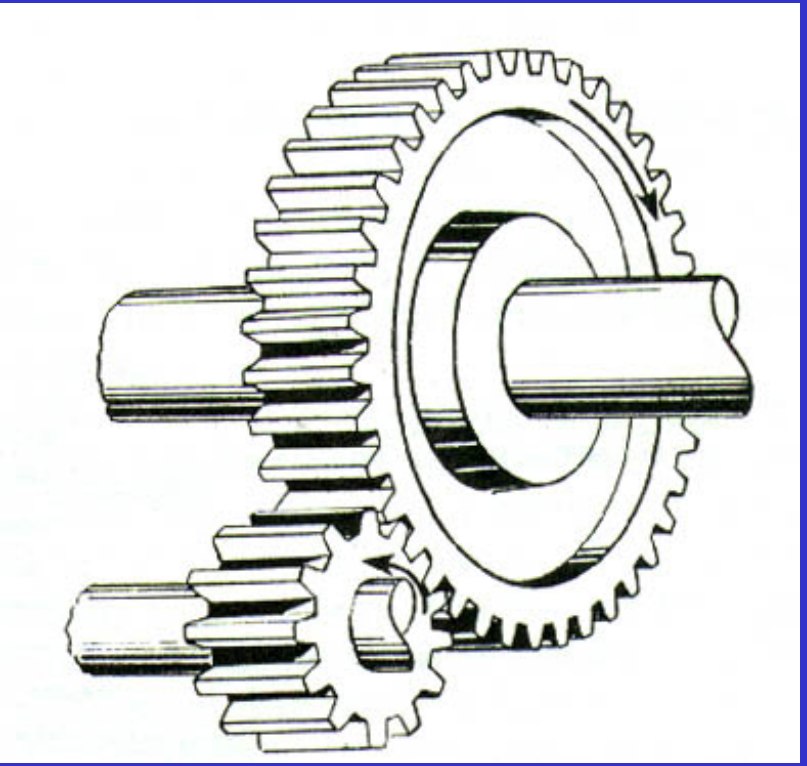
Helical Gears

- longer angled teeth
- transmit power between two parallel shafts
- stronger and quieter than spur gears
- develop side thrust



Spur Gears

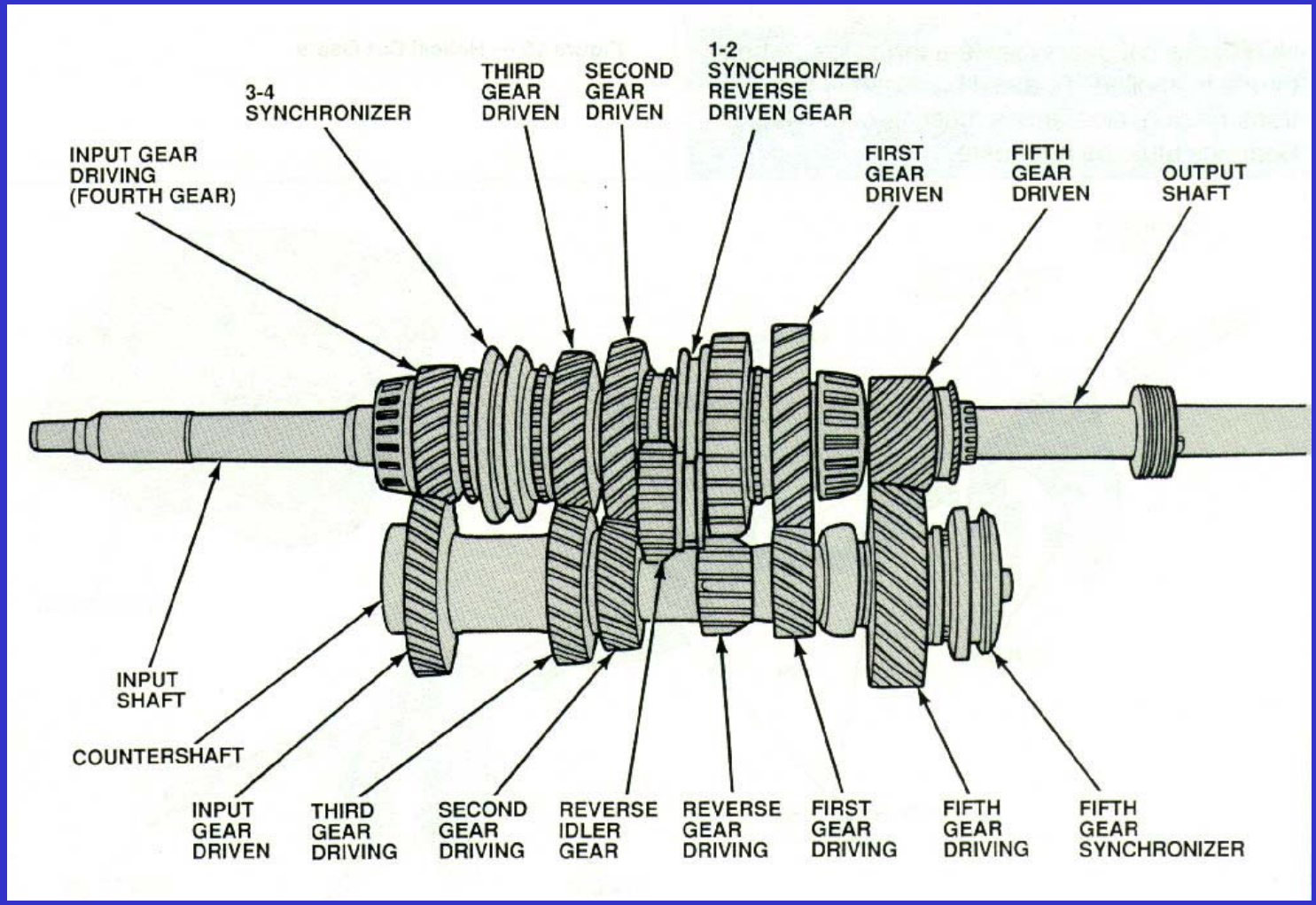
- Straight teeth
- transmit power between two parallel shafts
- little side thrust
- produce gear noise



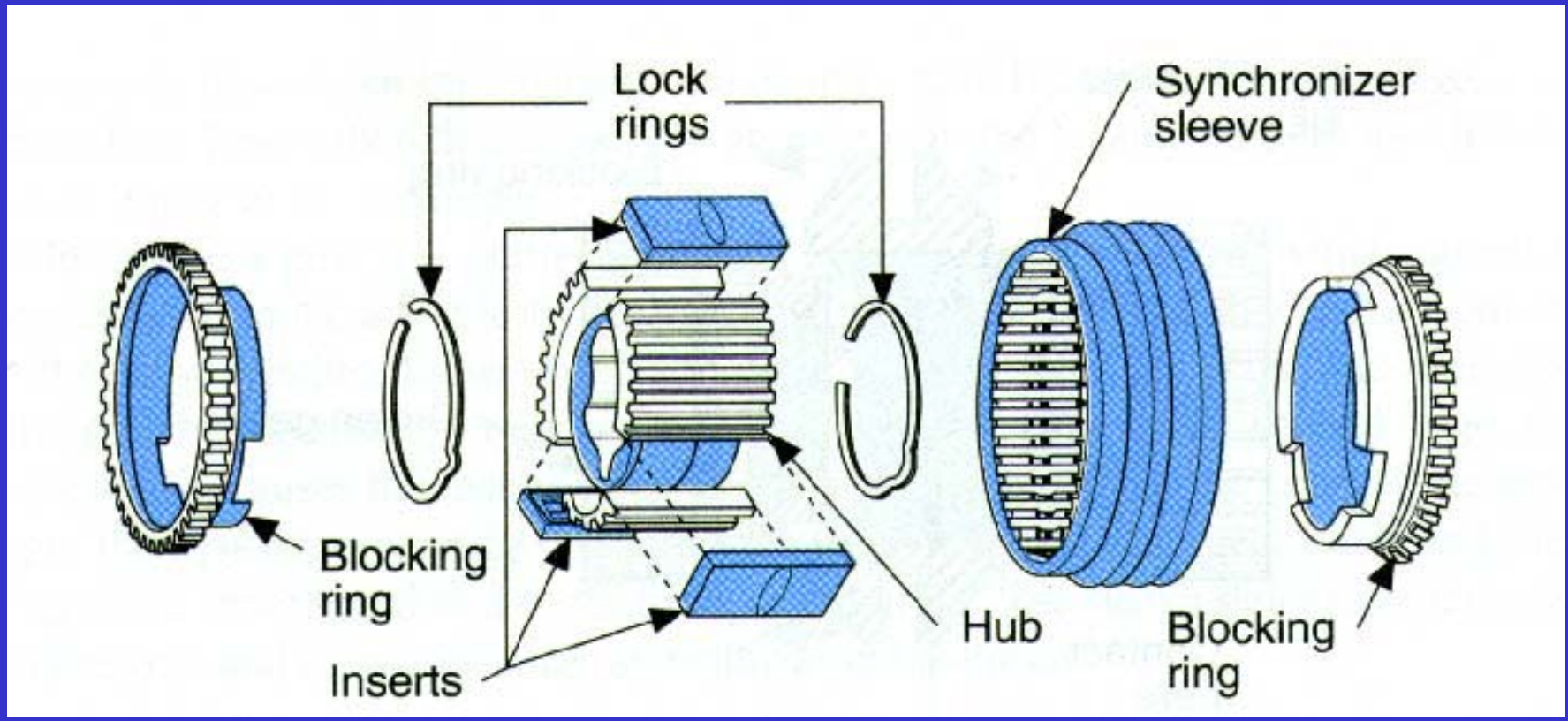
Typical Gear Ratios

Gear Range	Gear Ratio
First	3.91:1
Second	2.34:1
Third	1.46:1
Fourth	1:00:1
Fifth	0.79:1
Reverse	3.71:1

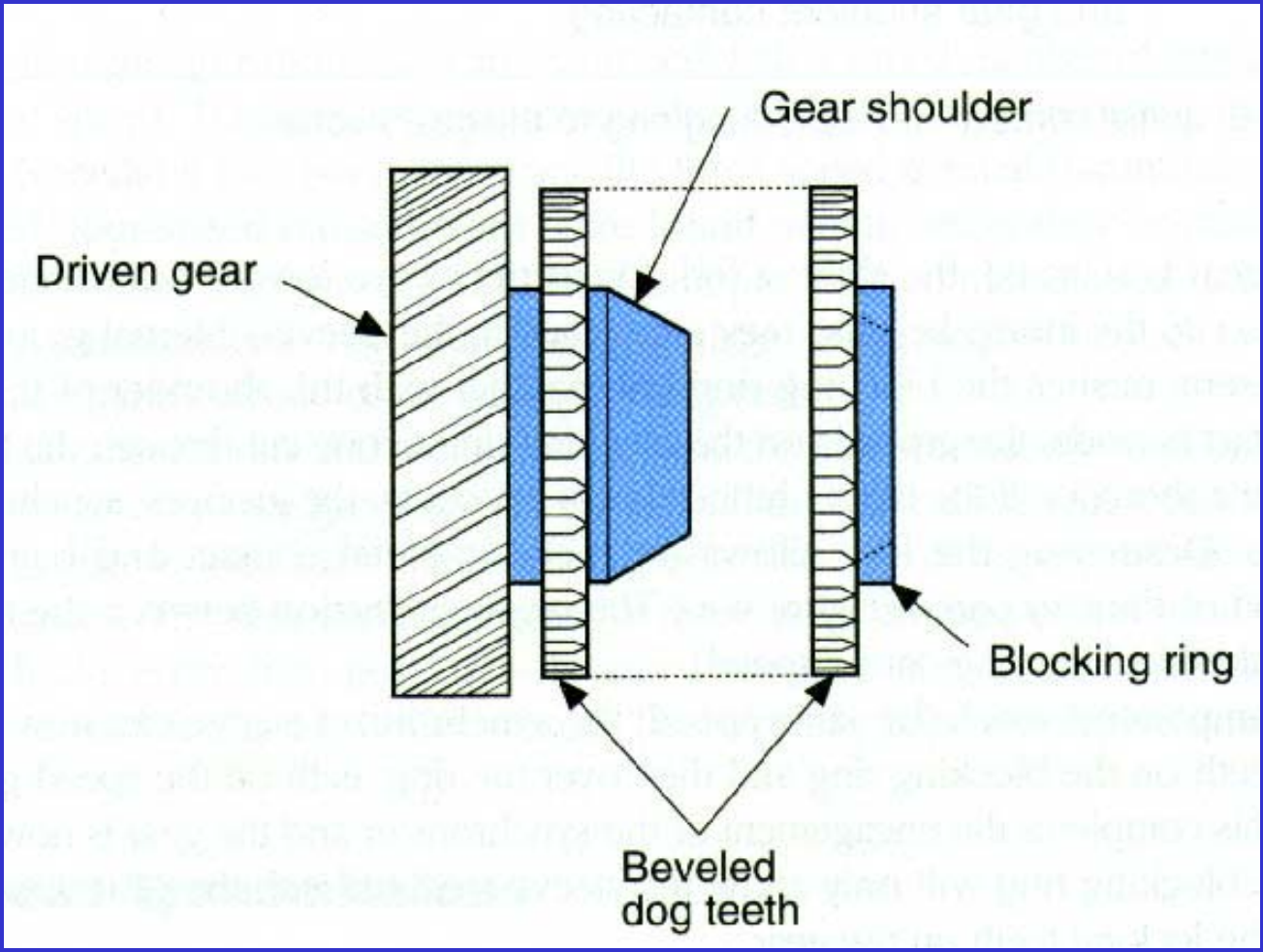
Ford T5OD


3-4
SYNCHRONIZER
THIRD
GEAR
DRIVEN
SECOND
GEAR
DRIVEN
1-2
SYNCHRONIZER/
REVERSE
DRIVEN GEAR
INPUT GEAR
DRIVING
(FOURTH GEAR)
FIRST
GEAR
DRIVEN
FIFTH
GEAR
DRIVEN
OUTPUT
SHAFT
INPUT
SHAFT
COUNTERSHAFT
INPUT
GEAR
DRIVEN
THIRD
GEAR
DRIVING
SECOND
GEAR
DRIVING
REVERSE
IDLER
GEAR
REVERSE
GEAR
DRIVING
FIRST
GEAR
DRIVING
FIFTH
GEAR
DRIVING
FIFTH
GEAR
SYNCHRONIZER

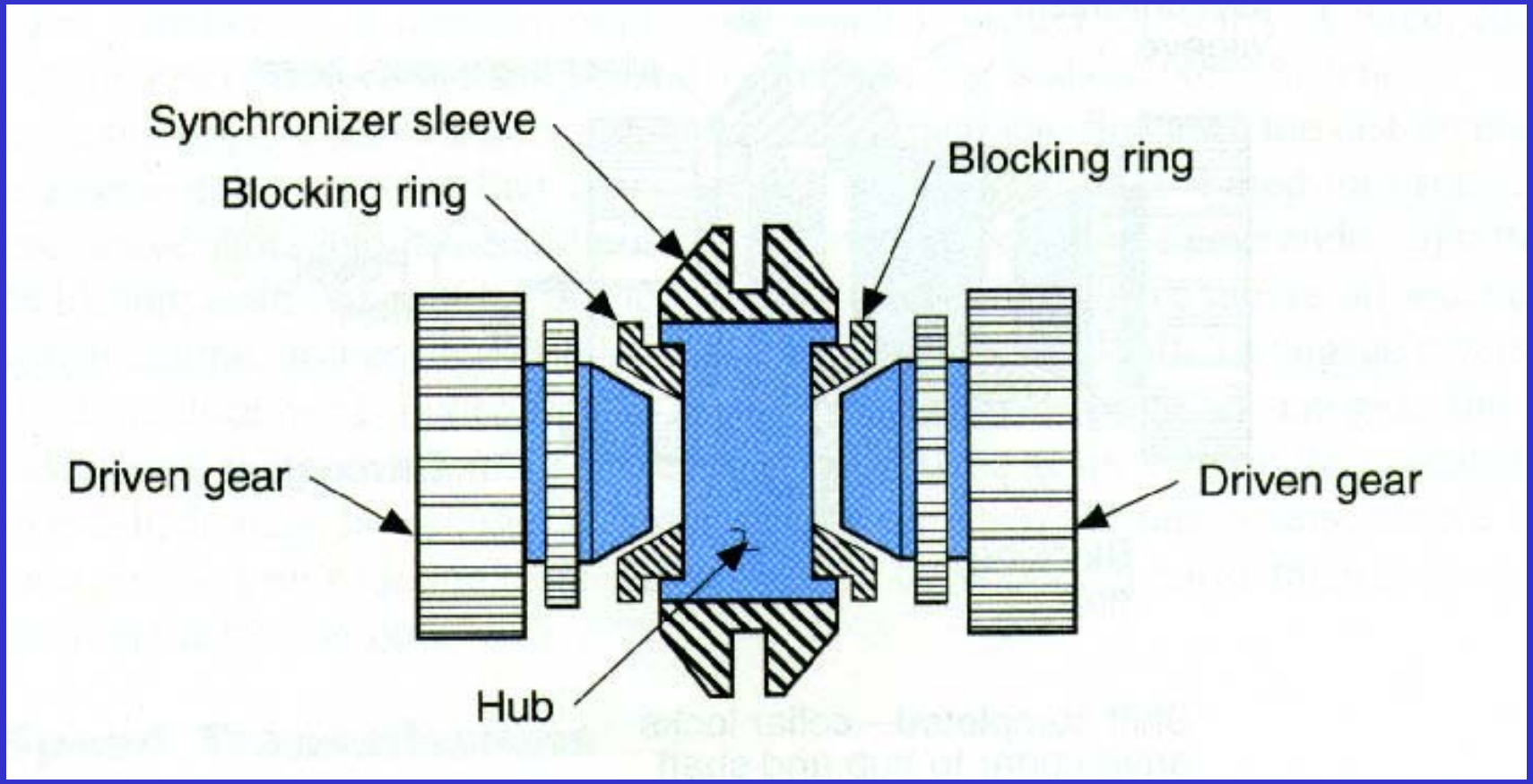
Synchronizer Assembly



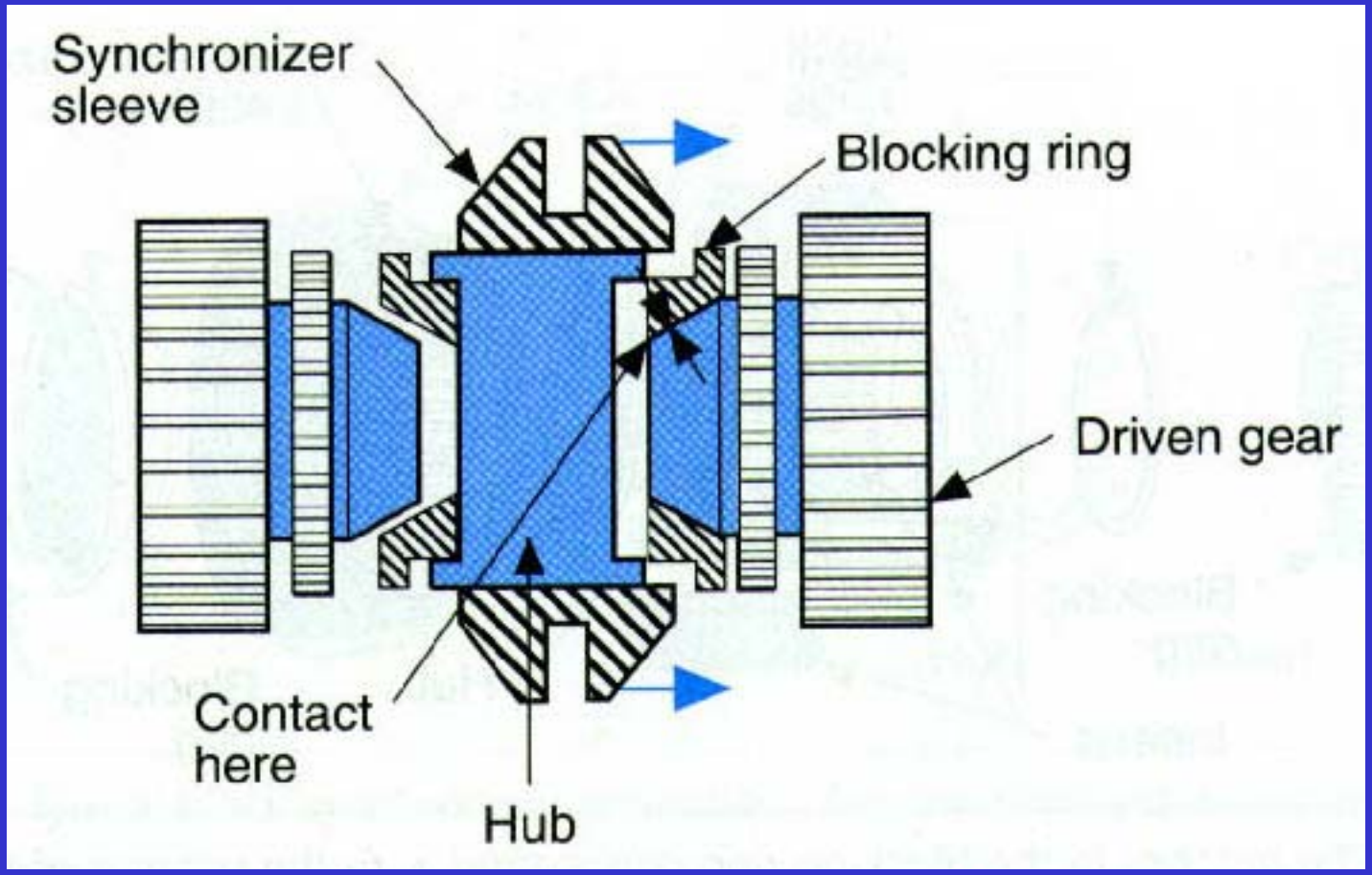
Blocking Ring



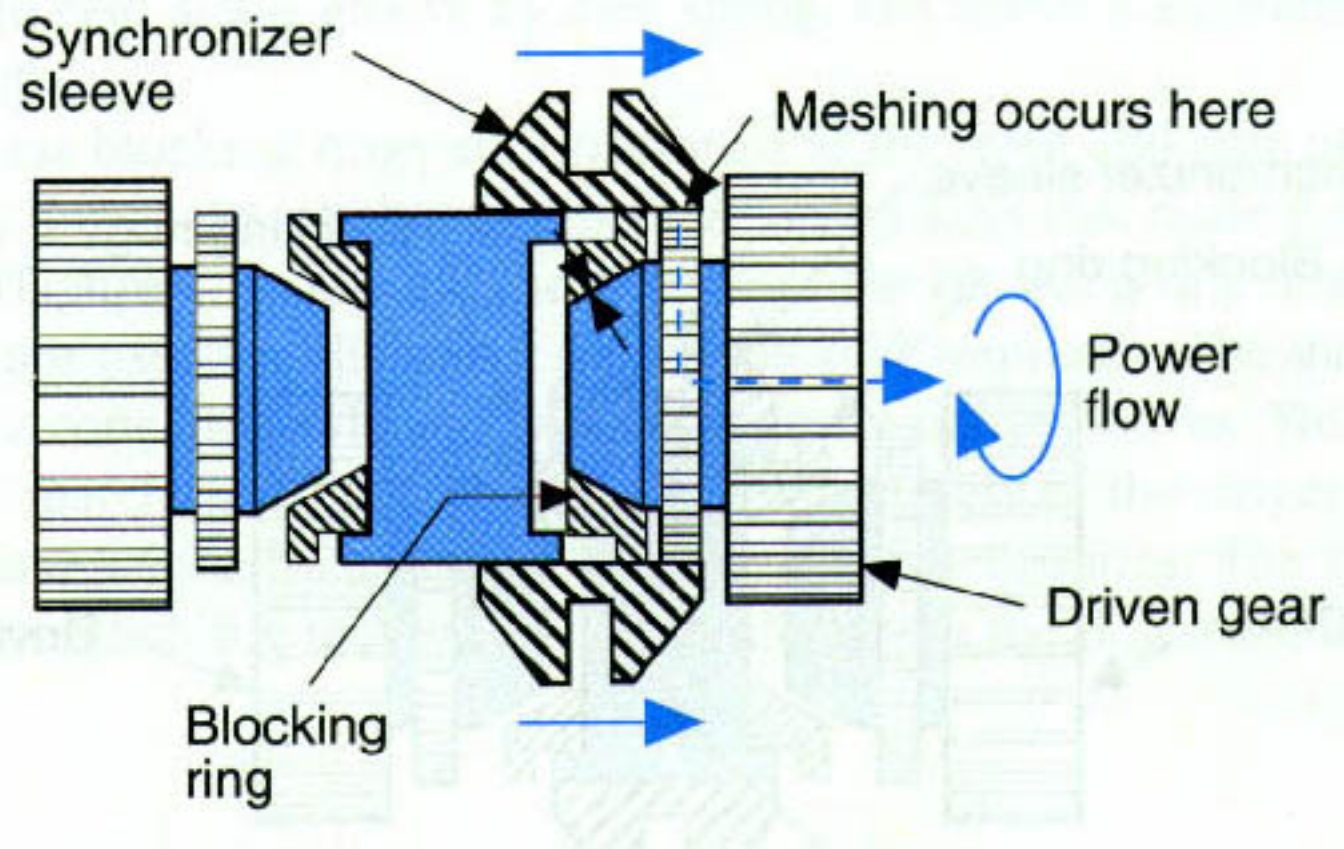
Neutral


Synchronizer sleeve
Blocking ring
Blocking ring
Driven gear
Driven gear
Hub

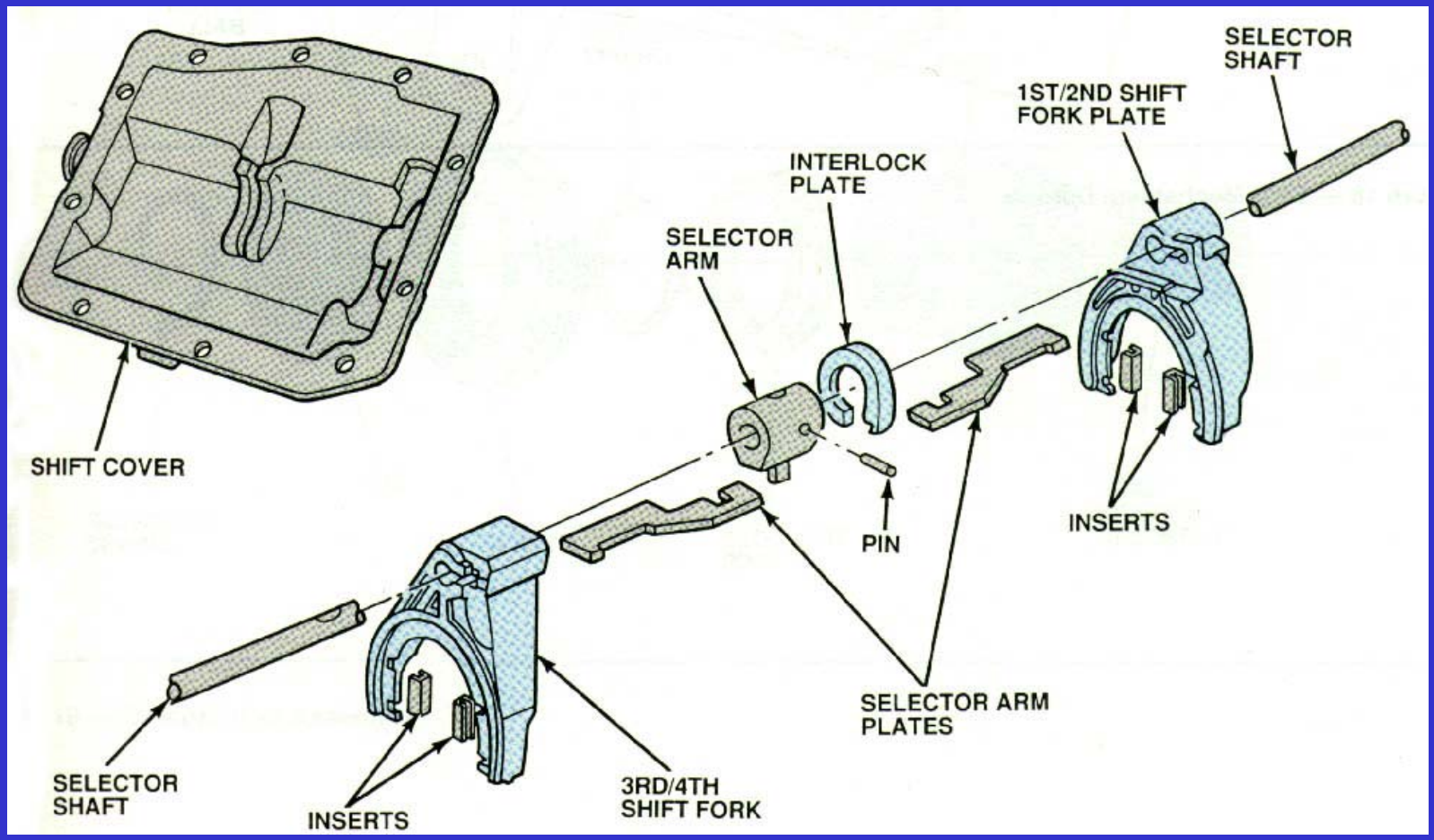
Synchronizing



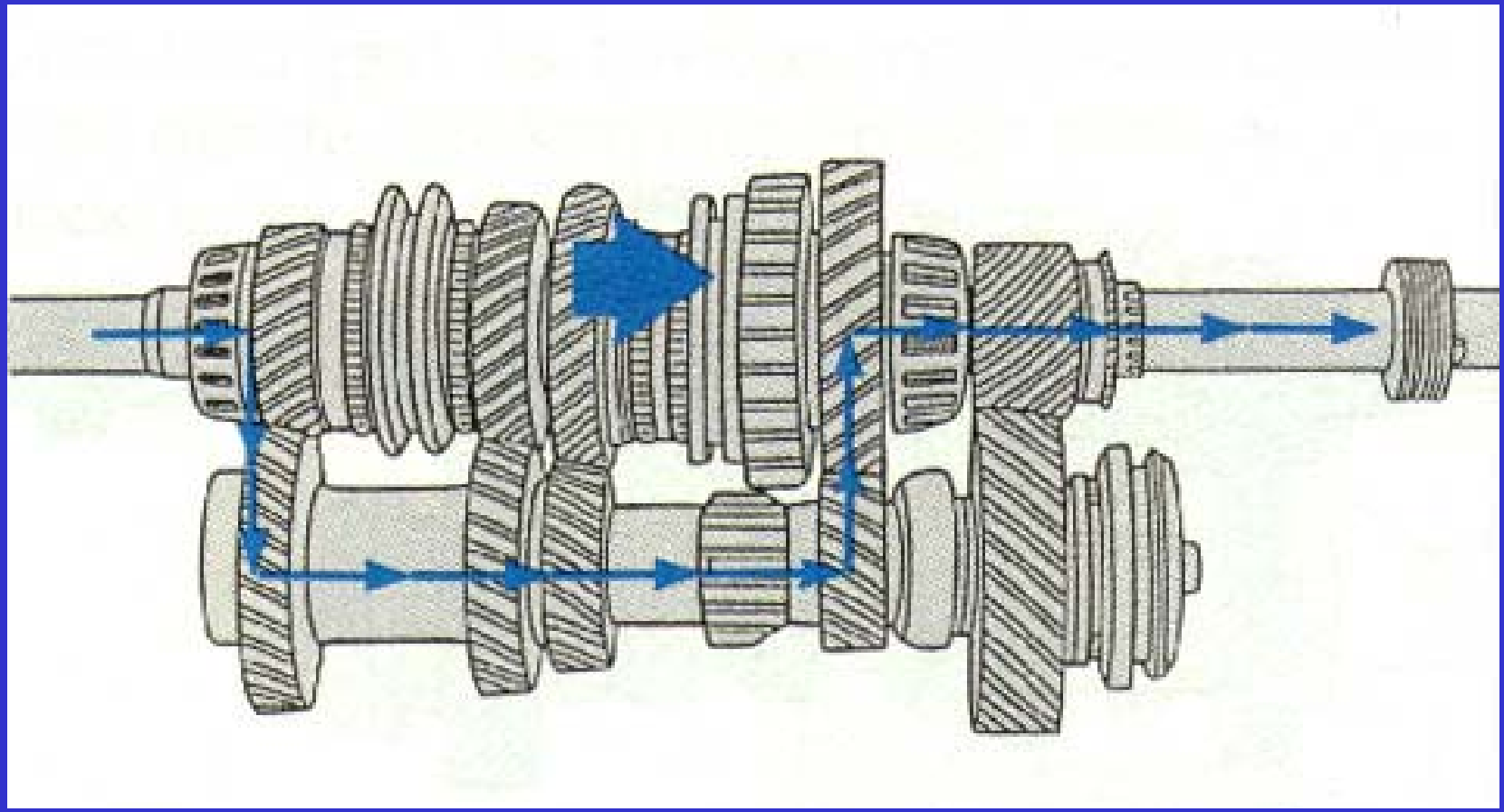
Engaged


Synchronizer sleeve
Meshing occurs here
Power flow
Driven gear
Blocking ring

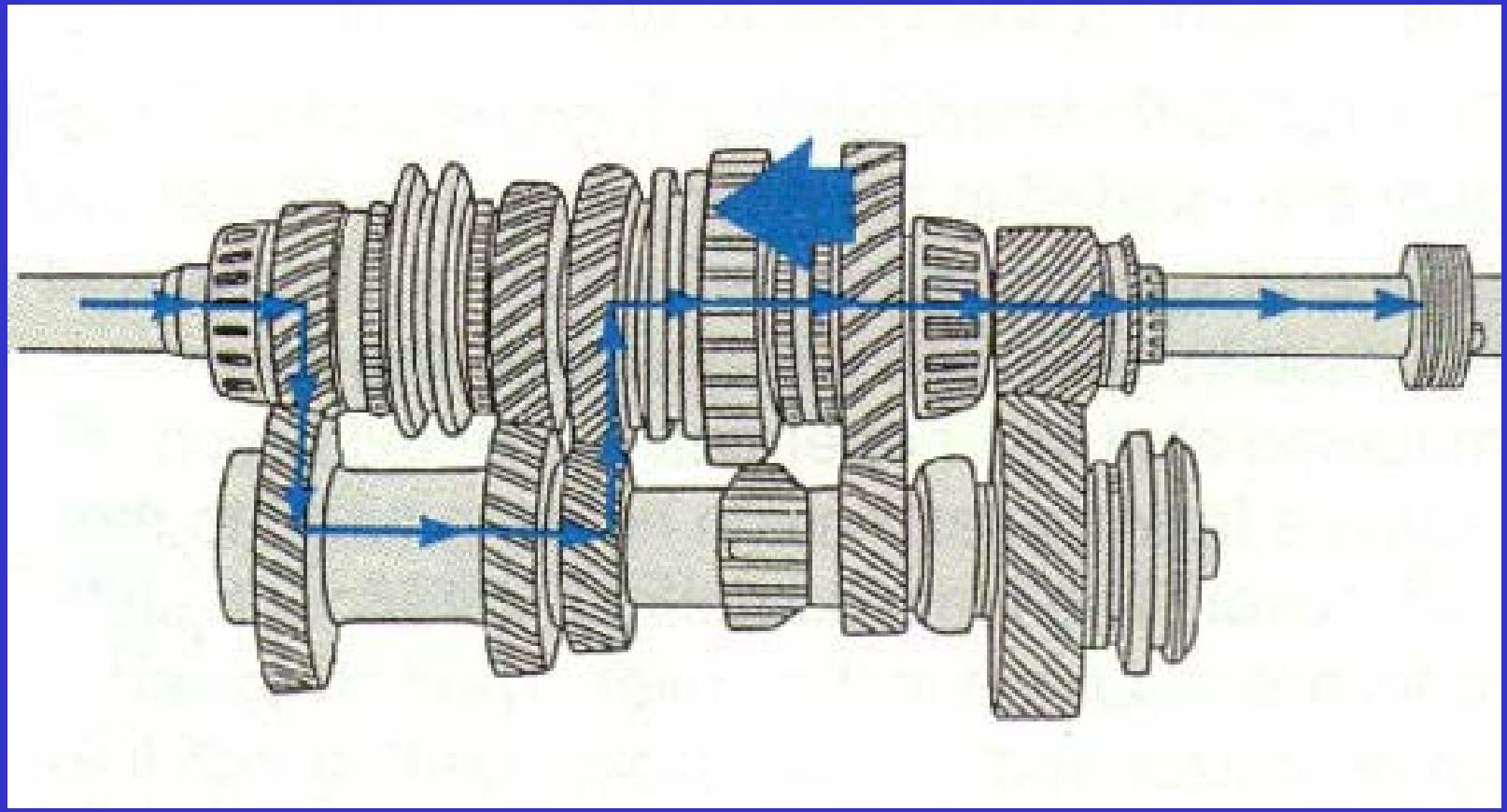
Shift Mechanism



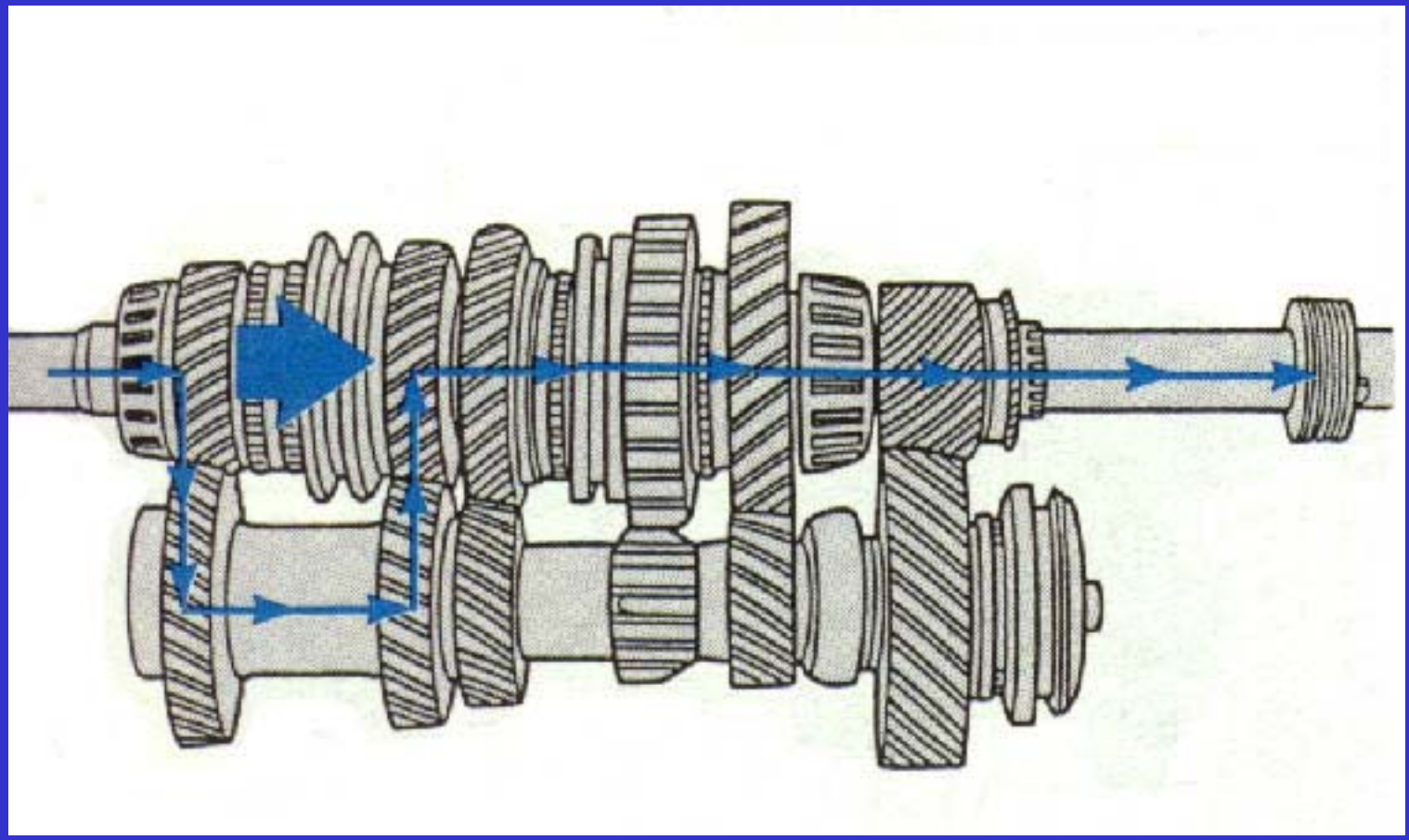
First Gear



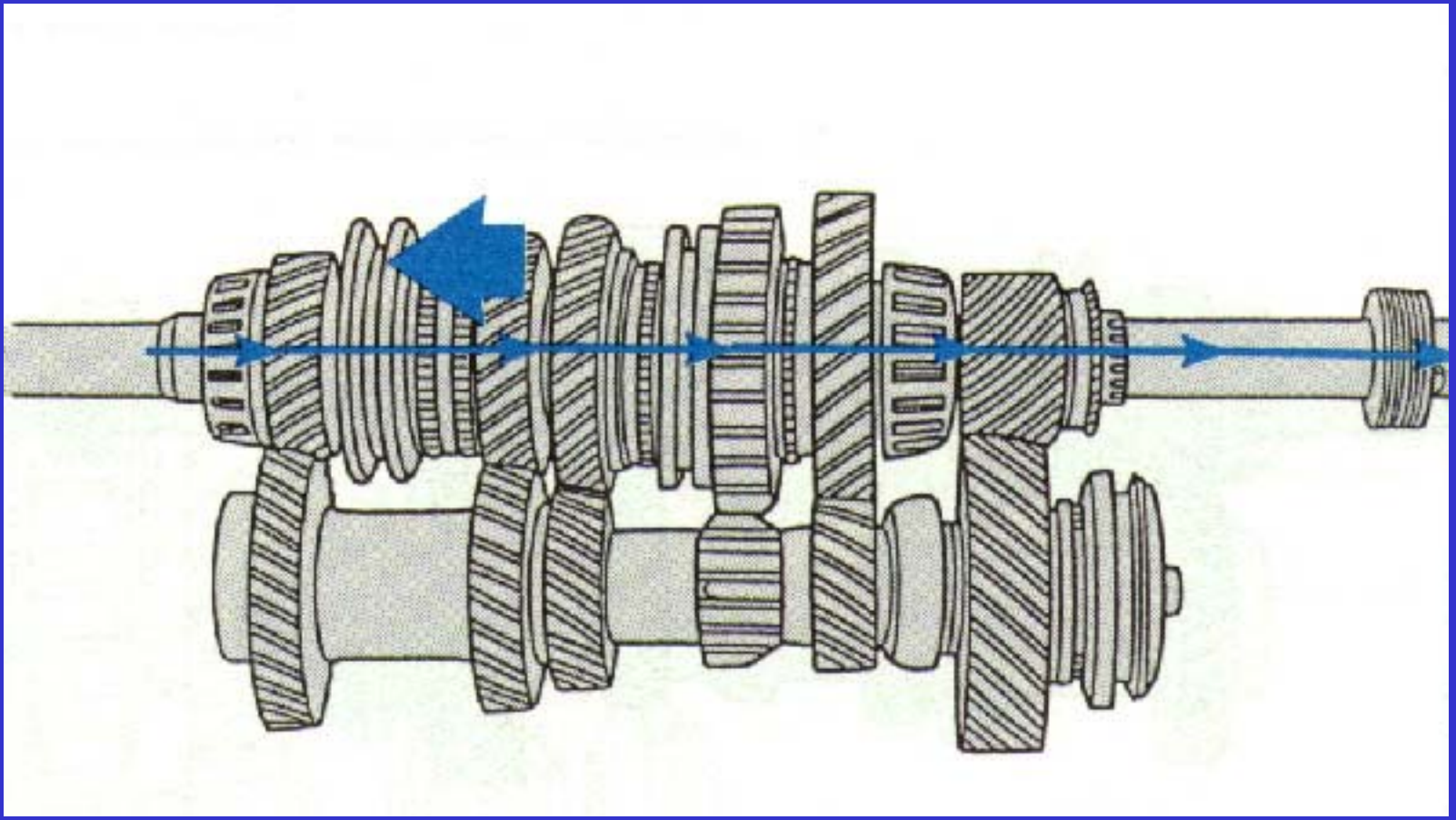
Second Gear



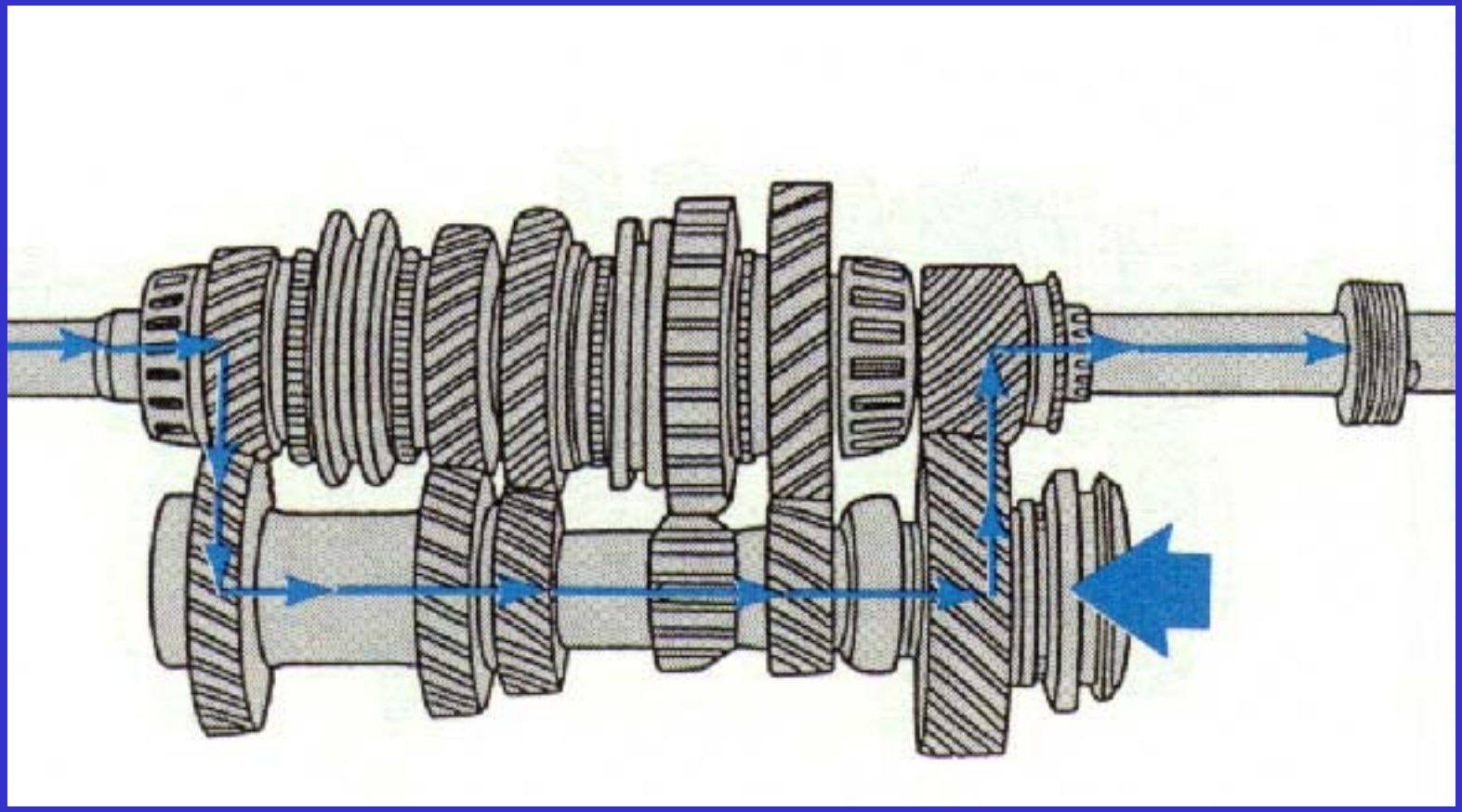
Third Gear



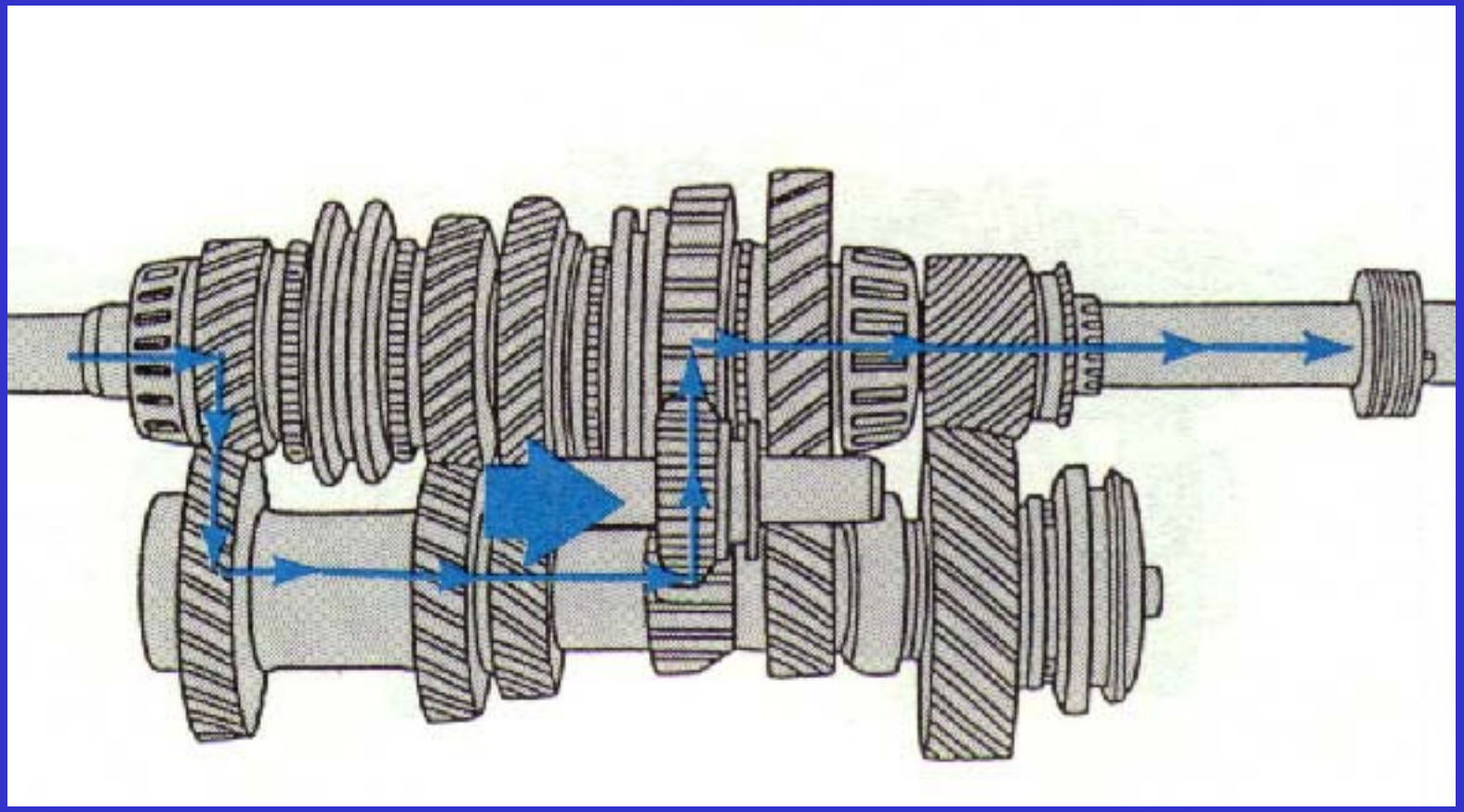
Fourth Gear



Fifth Gear



Reverse Gear



Bearings and Bushings

- Bushings
  - brass or bronze lining
- Ball or Roller Bearings
  - support a load
  - maintain alignment of a shaft
  - reduce rotating force
  - control endplay