

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B60 VEHICLES IN GENERAL

**B60G VEHICLE SUSPENSION ARRANGEMENTS** (air-cushion vehicles B60V; connections between vehicle bodies and vehicle frames B62D 24/00) [5]

#### Note(s)

Attention is drawn to the Note following the title of class B60.

#### Subclass index

RIGID SUSPENSION.....	1/00
RESILIENT SUSPENSION	
General structures	
for single wheels; single sets of tandem wheels; pivoted suspension arms and accessories therefor....	3/00, 5/00, 7/00
for rigid axle or axle housing for two or more wheels.....	9/00
Characterised by arrangement, location, or kind of: springs; vibration-dampers; or combined springs and dampers.....	11/00, 13/00, 15/00
Characterised by adjustment.....	17/00
SUSPENSIONS WITH MEANS FOR SENSING GROUND UNEVENNESS.....	23/00
INTERCONNECTED SYSTEMS FOR RESILIENTLY-SUSPENDED WHEELS.....	21/00
OTHER SUSPENSION ARRANGEMENTS.....	99/00

#### **1/00 Suspensions with rigid connection between axle and frame**

- 1/02 • with continuous axle
- 1/04 • with divided axle

#### **3/00 Resilient suspensions for a single wheel** (pivoted suspension arms per se, attachment thereof to sprung part of the vehicle, buffer means for limiting movement of arms B60G 7/00; characterised by arrangement, location, or type of springs B60G 11/00)

- 3/01 • the wheel being mounted for sliding movement, e.g. in or on a vertical guide (camber maintaining means B60G 3/26) [5]
- 3/02 • with a single pivoted arm
- 3/04 • • the arm being essentially transverse to the longitudinal axis of the vehicle
- 3/06 • • • the arm being rigid
- 3/08 • • • • the arm forming the axle housing
- 3/10 • • • the arm itself being resilient, e.g. leaf spring
- 3/12 • • the arm being essentially parallel to the longitudinal axis of the vehicle
- 3/14 • • • the arm being rigid
- 3/16 • • • the arm itself being resilient, e.g. leaf spring
- 3/18 • with two or more pivoted arms, e.g. parallelogram
- 3/20 • • all arms being rigid
- 3/22 • • • a rigid arm forming the axle housing
- 3/24 • • • a rigid arm being formed by the live axle
- 3/26 • • • Means for maintaining substantially-constant wheel camber during suspension movement
- 3/28 • • at least one of the arms itself being resilient, e.g. leaf spring

#### **5/00 Resilient suspensions for a set of tandem wheels or axles having interrelated movements**

- 5/01 • the set being characterised by having more than two successive axles [5]
- 5/02 • mounted on a single pivoted arm
- 5/03 • • the arm itself being resilient, e.g. a leafspring (B60G 5/053 takes precedence) [5]
- 5/04 • with two or more pivoted arms, the movements of which are resiliently interrelated
- 5/047 • • at least one arm being resilient, e.g. a leafspring (B60G 5/053 takes precedence) [5]
- 5/053 • • a leafspring being used as equilibration unit between two axle-supporting units [5]
- 5/06 • • the arms turning on a common pivot

#### **7/00 Pivoted suspension arms; Accessories thereof** (means for maintaining substantially-constant wheel camber during suspension movement B60G 3/26)

- 7/02 • Attaching arms to sprung part of vehicle
- 7/04 • Buffer means for limiting movement of arms

#### **9/00 Resilient suspensions for a rigid axle or axle housing for two or more wheels**

- 9/02 • the axle or housing being pivotally mounted on the vehicle
- 9/04 • the axle or housing not being pivotally mounted on the vehicle

#### **11/00 Resilient suspensions characterised by arrangement, location, or kind of springs** (single-wheel suspension by pivoted arm resilient in itself B60G 3/00; adjusting spring characteristic B60G 17/00; springs per se F16F)

**Note(s)**

In this group, the following terms or expressions are used with the meanings indicated:

- "torsion bar" includes torsion tube or the like;
  - "rubber" includes synthetic substitutes of a similar nature.
- 11/02 • having leaf springs only
  - 11/04 • • arranged substantially parallel to the longitudinal axis of the vehicle
  - 11/06 • • arranged obliquely to the longitudinal axis of the vehicle
  - 11/08 • • arranged substantially transverse to the longitudinal axis of the vehicle
  - 11/10 • • characterised by means specially adapted for attaching the spring to axle or sprung part of the vehicle
  - 11/107 • • • Sliding or rolling mountings [5]
  - 11/113 • • • Mountings on the axle (B60G 11/107 takes precedence) [5]
  - 11/12 • • • Links, pins, or bushes
  - 11/14 • having helical, spiral, or coil springs only
  - 11/15 • • Coil springs resisting deflection by winding up [5]
  - 11/16 • • characterised by means specially adapted for attaching the spring to axle or sprung part of the vehicle
  - 11/18 • having torsion-bar springs only
  - 11/20 • • characterised by means specially adapted for attaching the spring to axle or sprung part of the vehicle
  - 11/22 • having rubber springs only
  - 11/23 • • of the torsional-energy-absorption type [5]
  - 11/24 • • characterised by means specially adapted for attaching the spring to axle or sprung part of the vehicle
  - 11/26 • having fluid springs only, e.g. hydropneumatic springs (B60G 15/12 takes precedence)
  - 11/27 • • wherein the fluid is a gas [5]
  - 11/28 • • characterised by means specially adapted for attaching the spring to axle or sprung part of the vehicle
  - 11/30 • • having pressure fluid accumulator therefor, e.g. accumulator arranged in vehicle frame
  - 11/32 • having springs of different kinds
  - 11/34 • • including leaf springs
  - 11/36 • • • and also helical, spiral, or coil springs
  - 11/38 • • • and also rubber springs
  - 11/40 • • • • the rubber springs being attached to the axle
  - 11/42 • • • • the rubber springs being attached to sprung part of the vehicle
  - 11/44 • • • and also torsion-bar springs
  - 11/46 • • • and also fluid springs
  - 11/48 • • not including leaf springs
  - 11/50 • • • having helical, spiral, or coil springs, and also torsion-bar springs
  - 11/52 • • • having helical, spiral, or coil springs, and also rubber springs
  - 11/54 • • • • with rubber springs arranged within helical, spiral or coil springs
  - 11/56 • • • having helical, spiral or coil springs, and also fluid springs
  - 11/58 • • • • arranged coaxially
  - 11/60 • • • having both rubber springs and torsion-bar springs
  - 11/62 • • • having both rubber springs and fluid springs

- 11/64 • • • having both torsion-bar springs and fluid springs
- 13/00 Resilient suspensions characterised by arrangement, location, or type of vibration-dampers** (adjusting damping effect B60G 17/06; vibration-dampers per se F16F)
- 13/02 • having dampers dissipating energy, e.g. frictionally
  - 13/04 • • mechanically, e.g. having frictionally-engaging springs as damping elements
  - 13/06 • • of fluid type
  - 13/08 • • • hydraulic
  - 13/10 • • • pneumatic
  - 13/12 • • • quasi-fluid, i.e. having powdered medium
  - 13/14 • having dampers accumulating utilisable energy, e.g. compressing air
  - 13/16 • having dynamic absorbers as main damping means, i.e. spring-mass system vibrating out of phase
  - 13/18 • • combined with energy-absorbing means
- 15/00 Resilient suspensions characterised by arrangement, location, or type of combined spring and vibration-damper, e.g. telescopic type** (combined spring and vibration-dampers per se F16F) [5]
- 15/02 • having mechanical spring
  - 15/04 • • and mechanical damper
  - 15/06 • • and fluid damper
  - 15/07 • • • the damper being connected to the stub axle and the spring being arranged around the damper [5]
  - 15/08 • having fluid spring
  - 15/10 • • and mechanical damper
  - 15/12 • • and fluid damper
  - 15/14 • • • the damper being connected to the stub axle and the spring being arranged around the damper [5]
- 17/00 Resilient suspensions having means for adjusting the spring or vibration-damper characteristics, for regulating the distance between a supporting surface and a sprung part of vehicle or for locking suspension during use to meet varying vehicular or surface conditions, e.g. due to speed or load** [5]
- 17/005 • Suspension locking arrangements [5]
  - 17/015 • the regulating means comprising electric or electronic elements (B60G 17/005 takes precedence) [5, 2006.01]
  - 17/016 • • characterised by their responsiveness, when the vehicle is travelling, to specific motion, a specific condition, or driver input [2006.01]
  - 17/0165 • • • to an external condition, e.g. rough road surface, side wind [2006.01]
  - 17/017 • • characterised by their use when the vehicle is stationary, e.g. during loading, engine start-up or switch-off [2006.01]
  - 17/018 • • characterised by the use of a specific signal treatment or control method [2006.01]
  - 17/0185 • • • for failure detection [2006.01]
  - 17/019 • • characterised by the type of sensor or the arrangement thereof [2006.01]
  - 17/0195 • • characterised by the regulation being combined with other vehicle control systems [2006.01]
  - 17/02 • Spring characteristics (B60G 17/005-B60G 17/015 take precedence) [5]
  - 17/027 • • Mechanical springs regulated by fluid means (B60G 17/033 takes precedence) [5]

- 17/033 • • characterised by regulating means acting on more than one spring [5]
- 17/04 • • Fluid-spring characteristics
- 17/044 • • • Self-pumping fluid springs (pumps for liquids F04) [5]
- 17/048 • • • with the regulating means inside the fluid springs (B60G 17/044 takes precedence) [5]
- 17/052 • • • Pneumatic spring characteristics (B60G 17/048 takes precedence) [5]
- 17/056 • • • Regulating distributors or valves (B60G 17/044-B60G 17/048 take precedence) [5]
- 17/06 • Characteristics of dampers (B60G 17/015 takes precedence) [5]
- 17/08 • • Characteristics of fluid dampers (adjusting fluid dampers in general F16F 9/44-F16F 9/53)
- 21/00 Interconnection systems for two or more resiliently-suspended wheels, e.g. for stabilising a vehicle body with respect to acceleration, deceleration or centrifugal forces** (B60G 17/033 takes precedence; steering deflectable wheels combined with means for inwardly inclining the vehicle body on bends B62D 9/02) [5]
- 21/02 • permanently interconnected
- 21/04 • • mechanically
- 21/045 • • • between wheels on different axles on the same side of the vehicle, i.e. the left or the right side [5]
- 21/05 • • • between wheels on the same axle but on different sides of the vehicle, i.e. the left and right wheel suspensions being interconnected [5]
- 21/055 • • • Stabiliser bars [5]
- 21/06 • • fluid
- 21/067 • • • between wheels on different axles on the same side of the vehicle, i.e. the left or the right side [5]
- 21/073 • • • between wheels on the same axle but on different sides of the vehicle, i.e. the left and right wheel suspensions being interconnected [5]
- 21/08 • characterised by use of gyroscopes (gyroscopes for stabilising vehicle bodies without controlling suspension arrangements B62D 37/06) [4, 5]
- 21/10 • not permanently interconnected, e.g. operative only on acceleration, only on deceleration, or only at off-straight position of steering
- 23/00 Wheel suspensions with automatic means for sensing unevenness ahead of wheels or for moving wheels up or down in accordance therewith**
- 99/00 Subject matter not provided for in other groups of this subclass [2010.01]**