CLAIMS

1. An arrangement (A) connectable to a vehicle mounted weapon system (C), said arrangement being arranged to balance a gun barrel (20) of said vehicle mounted weapon system, the weapon system comprising the gun barrel (20) mounted to a turret (10) via a weapon cradle (30), the weapon cradle (30) being arranged to allow elevation movement of the gun barrel (20) about an elevation axis (Z1), said arrangement (A) comprising a suspension system (S), wherein the suspension system (S) comprises a torsion bar (40) having a first end portion (42) configured to be fixedly attached to the turret (10) and a second end portion (44) configured to be connected to the weapon cradle (30), the torsion bar being configured to provide a torque opposing imbalance of the gun barrel (20), the arrangement comprising an adjustment device (50; 150) for adjusting the torque provided by the torsion bar (40) of the suspension system (S) based on imbalance of the gun barrel (20), **characterized in that** the adjustment device (50) comprises: an actuator unit (52) configured to provide automatic adjustment of the torque provided by the torsion bar (40) of the suspension system (S) based on sensor data indicative for current imbalance of the gun barrel (20); and a torque adjustment device (54) arranged in connection to the torsion bar (40), wherein the actuator unit (52) is configured to provide adjustment of the torque provided by the torsion bar (40) by means of said torque adjustment device (54) configured to adjust the torque on the torsion bar (40) so as to dynamically counteract imbalance of the gun barrel (20).

2. The arrangement according to claim 1, wherein the sensor data indicative for current imbalance of the gun barrel (20) comprises energy required by drive arrangement for operating the weapon cradle (30) and/or current elevation of the gun barrel (20) and/or current roll and pitch of the vehicle (V) and/or current weight of gun barrel (20).

3. The arrangement according to claim 1 or 2, comprising a control device (100) configured to control the adjustment device (50) based on said sensor data indicative for current imbalance of the gun barrel (20).

4. A method performed by a control device (100) connectable to a vehicle mounted weapon system (C), said control device being arranged to balance a gun barrel (20) of said vehicle mounted weapon system, the weapon system comprising the gun barrel (20) mounted to a turret via a weapon cradle (30), the weapon cradle (30) being arranged to allow elevation movement of the gun barrel (20) about an elevation axis (Z1), the method comprising the step of providing a torque opposing imbalance of the gun barrel (20) by means of a suspension system (S), wherein the suspension system (S) comprises a torsion bar (40) having a first end portion (42) configured to be fixedly attached to the turret (10) and a second end portion (44) configured to be connected to the weapon cradle (30) so as to provide said torque, **characterized by** the step of:

- determining current imbalance of the gun barrel (20); and
- automatically adjusting the torque on the torsion bar (40) by means of an actuator unit (52) based on sensor data from the thus determined imbalance of the gun barrel (20) so as to dynamically counteract imbalance of the gun barrel (20).

5. The method according to claim 4, wherein the step of determining current imbalance of the gun barrel (20) comprises one or more of the steps of: determining energy required by a drive arrangement for operating the weapon cradle (30); detecting current elevation of the gun barrel (20); detecting current roll and pitch of the vehicle; and, determining current weight of gun barrel (20).

6. A vehicle comprising an arrangement connectable to a weapon system mounted on the vehicle, said arrangement being arranged to balance a gun barrel (20) of said weapon system, according to any of claims 1-3.

7. A vehicle according to claim 6, wherein the vehicle is a tracked vehicle.