

Service Technicians Manual for the Regulation of the Grand Piano Magnetic Accelerated Action (MAA)

1. Magnetic Accelerated Action (MAA)

What is MAA?

The magnetic accelerated grand piano action is a traditional piano action whose dynamic behaviour is affected by the installation of two correspondingly-oriented permanent neodyne magnets, with very long lifetime, into the wippen rail and into the wippen part so that they repulse each other (See the picture, position 1 and 2). With their forces, the magnets improve the dynamic behaviour of the piano action.

MAA effects

The magnets have the following effects on the behaviour of the action:

- Easier initiation of the wippen and hammer head movement.
- Gradual weakening of magnetic effects when a key goes down and the wippen up (gradual distancing of magnets).
- Faster and easier movement of action parts and keys.
- Faster repetition
- Key balancing with smaller weights, or reduction of the weight of keys at the front part.
- When a key is touched and released, the wippen and key get into their original positions faster.
- Reduction of moving inertia masses during the keys and action parts movement, reduction of the load of the leverage system of the keyboard and action.
- Reaching the feeling of easiness of piano playing while sustaining the usual traditional static balancing of the keys.
- Easier changes in the dynamics and technique of piano playing.
- Lower physical exertion and tiredness while playing.

2. MAA Regulation by the Manufacturer

The MAA is adjusted by the manufacturer at the required levels and if no regulation changes are made, no interventions in the MAA regulation are necessary. The following is the manufacturer's procedure for MAA assembly and regulation:

- Resistance (weight) is measured at the front end of every key together with action parts when the keys go down and up.
- The necessary force (size) of magnets for every key is calculated.
- The magnets are installed into the wippen rail and wippens.
- The keyboard is balanced (reduced weight of the weights at the back part of the keys, reduced load of the keys at the front part).
- The magnets are adjusted. The position of lower magnets in the wippen rail is more or less stable. Upper magnets are set in an optimal position to reach optimal magnet effects on the dynamic behaviour of action and the magnets are set in such a position that they can be regulated both ways (up and down).

3. Possible Regulation Changes

The action regulation may change during piano transport, storage or use under unsuitable climatic conditions (see the Instructions for Customers), which may result in changed action behaviour and changed touchweight. Such regulation changes are caused by minor size dimensional changes of the keys, action parts, or key frame resulting from inadequately high or low air humidity.

4. Fine MAA Adjustment by Piano Technicians

General Information

- Every MAA is adjusted by the manufacturer to optimal levels in optimal climatic conditions.
- Any changes in the MAA adjustment are presumed only in case that any major changes and differences in the regulation and touchweight of individual keys and action parts are found.
- If any differences in the regulation and touchweight are found, the traditional re-regulation of all regulation parameters of the action and keyboard has to be performed. You can proceed to magnet regulation only when all the defined parameters of action and keyboard regulation are at correct levels, including the key clearance and function on balance and oval front pins.
- In fine regulation of magnets by a piano technician, only regulation of upper magnets in the wippen is presumed. The manufacturer adjusts these upper magnets in the middle position. The magnets are adjusted by turning the magnet screw with a flat screwdriver.
- Any changes in magnet adjustment ought to be minor in order to reach the precisely required weight on the front parts of the keys and eliminate any significant changes in the dynamic behaviour of action. If any change in the mutual magnet position is too large during regulation of any system (set) of action parts, the static balancing of the key might be all right, but the significant change in the distance between the lower and upper magnet would result in significant changes in the dynamic behaviour of these action parts.

Adjustment

- If the touchweight on the key's front part is to be slightly increased, the upper magnet's screw in the wippen (See the picture, position 1) is turned slightly left, i.e. counter clockwise, in order to move the magnet up from the lower magnet in the action rail (See the picture, position 2). The magnet effects are then reduced.
- If the touchweight on the key's front part is to be slightly decreased, the upper magnet's screw in the wippen is turned slightly right, i.e. clockwise, in order to move the magnet closer down to the lower magnet in the action rail. The magnet effects are then increased.
- If it is in the last resort necessary to markedly increase the touchweight on the key's front part and the upper magnet adjustment in the wippen is insufficient, the lower magnet in the action rail (See the picture, position 2) may be regulated by being turned down and thus moved away from the upper magnet (See the picture, position 1). The magnet screw is turned by a 2.5 mm hexagon after the entire action is demounted from the key frame and lifted to allow access to magnet screw heads with hexagonal opening for the regulation hexagon. This operation is not recommended and is not necessary under usual conditions. Any substantial changes in the mutual magnet position result in substantial changes in the dynamic behaviour of action.
- If it is in the last resort necessary to markedly decrease the touchweight on the key's front part and the upper magnet adjustment in the wippen is insufficient, the lower magnet in the action rail may be regulated by being turned up and thus moved closer to the upper magnet. The magnet screw is turned by a 2.5 mm hexagon after the entire action is demounted from the key frame and lifted to allow access to magnet screw heads with hexagonal opening for the regulation hexagon. This operation is not recommended and is not necessary under usual conditions. Any substantial changes in the mutual magnet position result in substantial changes in the dynamic behaviour of action.

