MTC-1 Mini Tank Controller for RC tanks

MTC-1 integrates tank motion, turret rotation, gun elevation and sound effects in a single control board. It contains two FET motor drives for twin motor operation of tracked vehicles. Two servo ports for control of turret rotation and gun elevation. A sound effect connector provides main gun firing and machine gun firing sounds. The versatile design and small size make it ideal for converting 1/35 static tank models to RC control. It can be used in modern main battle tanks, WWII tanks, fix turret tank destroyers and tracked personnel carriers.

Highlight Features:

- Twin FET motor drives. 4A continuous current for 370, 280, 260, 130 size motors.
- Electronic speed control with forward, reverse, left, right and pivot turn over all speed range.
- Two servo ports for turret rotation and gun elevation, with speed control.
- Turret rotation can be replaced by gun left/right motion by jumper setting.
- Sound effect connector provides main gun firing and machine gun firing sounds. Tank recoil during main gun firing.
- Gun return to reload position after fire.
- 4 channel or 2 channel receiver options. When using 2 channel receivers, control can be switched between tank motion and turret / gun motion by trimmer action.
- Simple one button setup procedure.
- 5 configure jumpers.
- 3.6V – 9V voltage range.
- Overall size 38mm x 38mm x 13mm (1.5”x1.5”x0.5”)

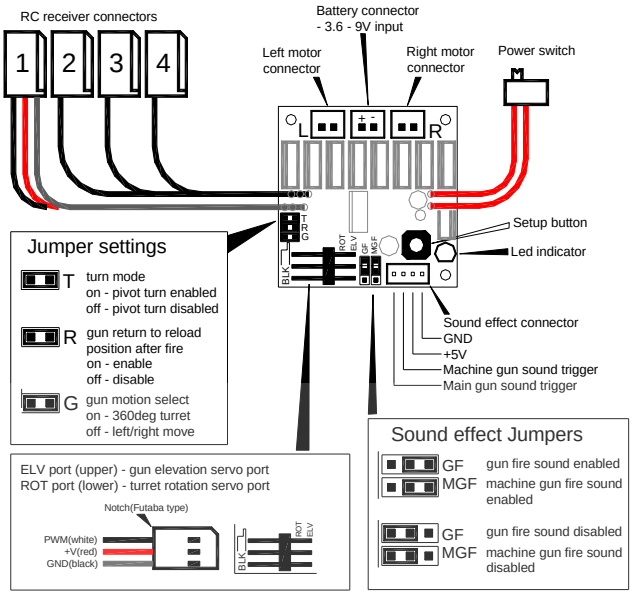

Fig.1 - MTC-1 Mini Tank Controller Layout

MTC-1 parts:

1) Battery connector – 3.6 - 9.0V battery input. **DO NOT REVERSE INPUT POLARITY TO AVOID DAMAGE!** Remove battery when not in use for long time.
2) Motor connectors – Connect to left and right motors.
3) Power switch – On/off switch of control circuits.
4) RC receiver connectors – For 4 CH receivers, connect all connectors No.1 – 4. For 2 CH receivers, connect connectors No.1 and 2 only.
5) ELV port – Gun elevation servo port.
6) ROT port – Turret rotation servo port. A continuous rotation servo is connected here to control turret rotation. For tanks with fixed turret, remove the G-jumper to set this port to left / right gun movement by standard servo.
7) Sound effect connector – Connect to the sound effect unit to generate main gun firing and machine gun firing sounds.
8) Led indicator – Multi-purpose indicator. When power on, it lights up 1 sec and then blinks slowly if it do not receive RC signal. It lights up continuously when signal is received from the RC connectors. It will also flash during the setup process. See setup procedures for details.
9) Setup button – Setup MTC-1 for a particular transmitter. It also setup the gun reload position if R jumper is on. See setup procedures for details.
10) T jumper – Turn mode jumper. Remove this jumper to disable pivot turn.
11) R jumper – Enable gun return to reload position after fire. Remove this jumper to disable this feature.
12) G jumper – Gun motion select jumper. Install this jumper for turret with 360^{o} rotation. In this mode, a servo modified for continuous rotation is connected to ROT port to control turret

rotation speed. When the jumper is removed, a standard servo is connected to ROT port to control the left/right gun movement.

13) Sound effect jumpers – GF(gun fire) and MGF(machine gun fire) are jumpers controlling the two sound effects. In the enabled position (see Fig.1), sound effects will be triggered by stick motions. See control methods for details. Tank will recoil during gun fire.

Transmitter Stick Modes

Stick modes difference between manufactures. MTC-1 follows the stick modes of Futaba transmitters (Fig.2). If your transmitter has a different stick mode, change the numbers of RC connectors accordingly.

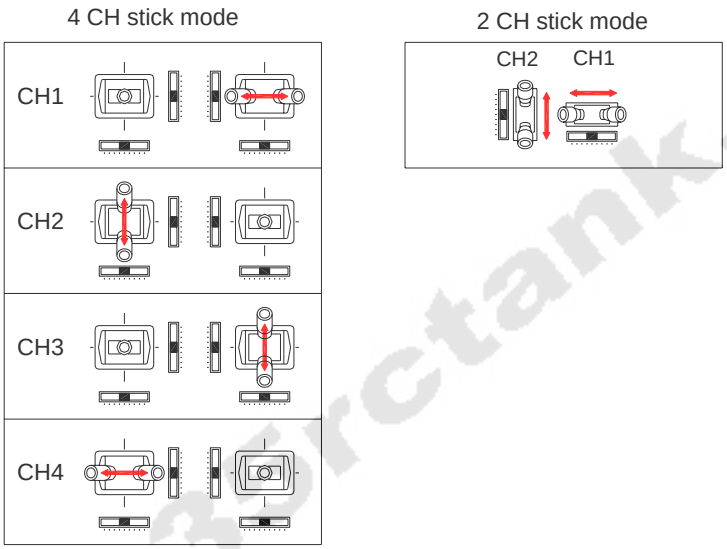

Fig.2 - Stick modes of MTC-1

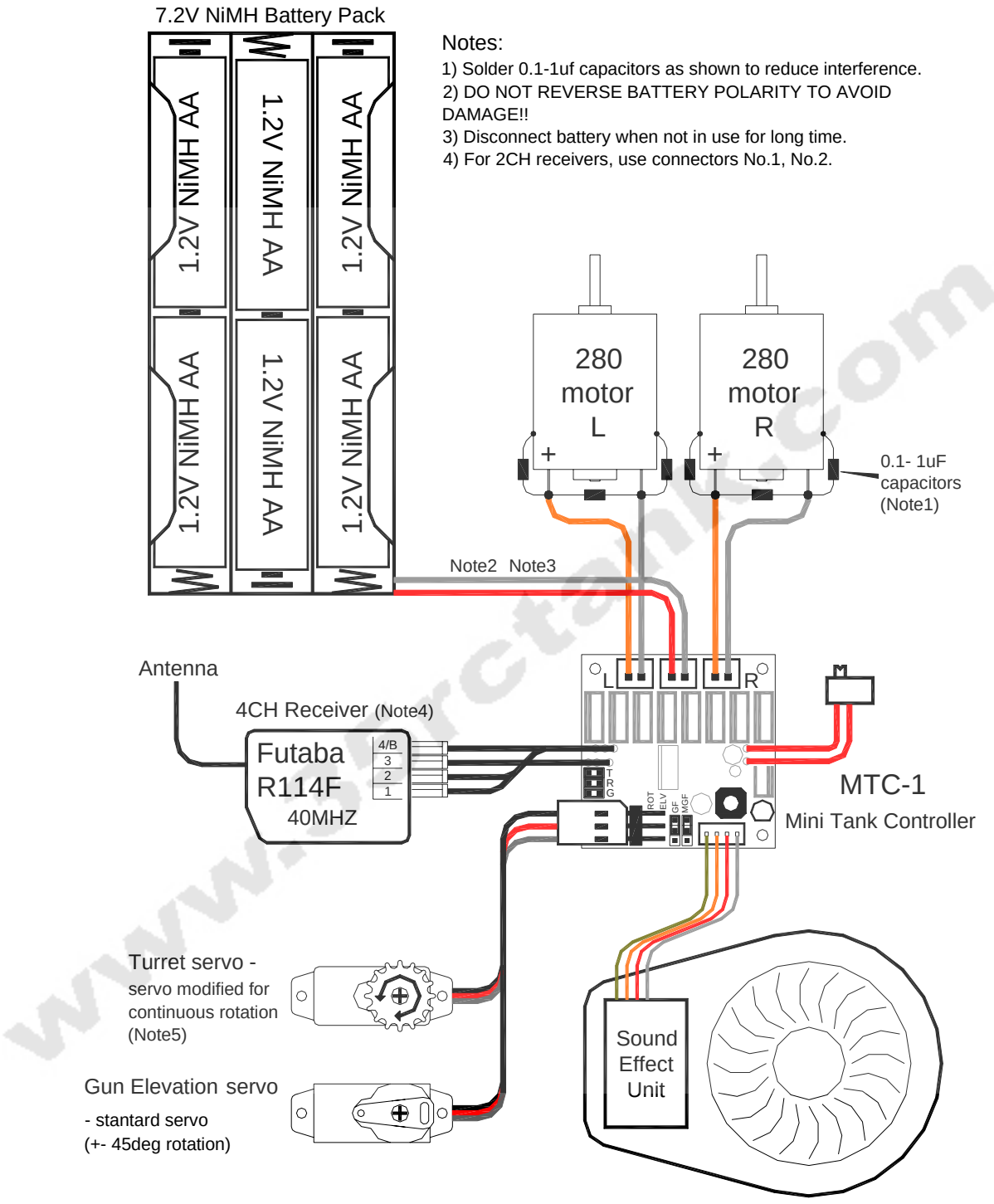

Fig.3 - Typical MTC-1 connection