

Remote Control Systems

2.4 GHz RADIO CONTROL

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TX-9

Digital Proportional R/C

Thank you for purchasing this DSM2 7 channel TX handpiece.

THE TX-9 IS FOR CONTROLLING LIVE STEAM LOCOS plus "CENTRE" OFF and "LOW" OFF ESC's.
WE RECOMMEND USING THE TX-9 WITH VIPER ESC's and RCS OMEGA-3v7 ESC's.

N.B. IF YOU WISH TO USE THE FULL CAPABILITIES, THE TX-9 REQUIRES YOU USE A DSM2/DSMX 2.4 GHz RX WITH AT LEAST 7 STANDARD SERVO CONTROL CHANNELS.

INSTRUCTION MANUAL

THESE INSTRUCTIONS REFER SPECIFICALLY TO THE DELTANG R/C BASED TX-9 HANDPIECE.

They should be read in conjunction with the RCS ESC you are using.



5 X DIGITAL PROPORTIONAL SERVOS.
MEDIUM KNOB SETS THE VALVE GEAR.
300° KNOB CONTROL OF REGULATOR.
3 X 300° KNOB CONTROL SERVOS FOR
FUNCTIONS SUCH AS DRAINCOCKS,
BLOWERS & UNCOUPLING ETC.
4 X HALF MOVEMENT SERVOS.



REMOVE REAR OF TX TO INSERT
THE 9 VOLT BATTERY.



CENTRE OFF OR LOW OFF BATTERY R/C.
CAN CONTROL 2 X CENTRE OFF ESC'S.
FOR LOW OFF ESC'S THE MEDIUM KNOB
SETS DIRECTION.
SPEED CONTROLLED BY LARGE KNOB.
F1, F2, F3 & F4 ARE USED FOR SOUND
SYSTEM TRIGGERS.

THE TX-9 IS GUARANTEED FOR ONE YEAR.

When used for battery R/C you will supply a locomotive or trail car, the 14 – 20 volt traction batteries (depending on ESC), a fuse, ON-OFF switch and wires where necessary, to connect the ESC to the battery and motor(s).
Where soldering is necessary, we recommend a low wattage soldering iron and resin core solder.

TO AVOID CONFUSION WITH OTHER OPERATORS, WE SUGGEST YOU MARK THE TX TO SHOW WHICH LOCO IT IS OPERATING.

CAUTION

DO NOT ATTEMPT TO ALTER THE TUNING OF THE RADIO EQUIPMENT.
DO NOT USE RADIO CONTROL EQUIPMENT IN THUNDERSTORMS.

CHILDREN UNDER 12: ADULT SUPERVISION RECOMMENDED DURING USE.

RCS TX & RX PRODUCTS MUST NOT BE USED FOR CONTROLLING RIDE ON LOCOMOTIVES CAPABLE OF
CARRYING MEMBERS OF THE GENERAL PUBLIC.

PREPARING THE #TX-9

THESE INSTRUCTIONS REFER TO THE **RCS TX-9** 2.4 GHz 7 CHANNEL R/C.
LAYOUT OF THE TX-9 TRANSMITTER HAND PIECE.

The medium sized valve gear knob is in the upper middle. The large steam regulator knob sits just below.
Top left is the ON – OFF switch. Top middle is Ch # 5. Top right is the Bind/Ch # 5 pushbutton.
The other two knobs on the end of the case can be used for any servo controlled function. Ch # 6 & Ch # 7.
F1, F2, F3 & F4 provide 4 x half servo movements or sound triggers.

1. “BINDING”.

The 1st procedure is to “BIND” the receiver (RX) to the Transmitter (TX).
“BINDING” is accomplished by following a few simple steps below.
When binding we recommend removing the servos from the RX.

HOW TO “BIND” USING A DSM2 RX OR RCS (AB) Rx’s.

1.1 MANUAL BIND. Insert the “BINDING” plug supplied with the DSM2 RX into the “BINDING” pins on the **RX**.
You can also use the # BINDER switch assembly if you do not wish to get inside the loco.
For # 7-Ch-RX see separate instruction pages.

1.1 AUTO-BIND receivers 1.3 below. Turn on the loco power >RX and wait 20 seconds for the RX to enter bind mode.
RX LED will flash rapidly OR;

1.2 MANUAL BIND Turn the loco RX ON. The RX LED will start blinking very rapidly to indicate it is ready to be bound.

1.3 AUTO-BIND Loco power ON >RX and wait 20 seconds for the RX to enter bind mode. RX LED will flash rapidly.



1.4 Press **and hold** the right pushbutton on the handpiece marked with a hexagonal symbol. You should keep TX & RX at least 1 x metre apart for binding to take place.

1.5 Then press **and hold** the ON – OFF button to **ON**. Hold both buttons until the RX LED stops flickering & starts blinking slowly. Then let both TX buttons go. The TX button also blinks slowly & then goes to solid ON.

1.5 The LED on the RX will blink more slowly and then go solid ON.

1.6 When “BINDING” is complete the RX LED will change to solid ON.

N.B. “BINDING” plug MUST be removed BEFORE the SYSTEM is turned OFF.

1.7 The “BINDING” plug is removed & stored safely.

RCS offers an optional extra # **BINDER** cable and pushbutton. When fitted this will enable any non RCS loco to be bound to any TX without requiring access to the inside of the loco. This will enable any loco to be swapped between any other DSM2 TX’s. You will be able to “hand off” speed matched locos for MU’ing into a consist.

* SERVO REVERSING.

If you can use the Rx-102-1 DSM2 compatible RX’s, they can set the default direction of three individual channels.
Alternately low cost servo reversing modules are readily available for individual channels.

2. PREPARING FOR USE WITH LIVE STEAM LOCOS.

(N.B. there is a centre “click” détente on the big throttle knob as well as the direction knob).

Make sure the RX is OFF. Then re-insert the servos into the correct RX sockets.

The regulator servo goes in Ch # 1 (Throttle) socket.

The valve gear servo goes in Ch # 3 (Elevator) socket.

When using for the first time make sure all knobs are centered. Turn ON the TX-9 handpiece.

VALVE GEAR SERVO *

1.1 Then turn on the Live Steam loco RX. The two servos should immediately snap to the neutral position.

1.2 Adjust the valve gear servo connecting rod to ensure the centre position of the valve gear matches the servo.

1.3 Turn the medium knob slowly to the right Clockwise (CW) and check that the servo moves the valve gear to the forward position.

If it goes the wrong way you will need to reverse the mechanical connection. * (See page # 2).

If the small knob wants to make the servo move too far put the connecting rod into a servo arm hole closer to the middle of the servo arm. If it does not move far enough move the rod into a hole further out.

N.B DO NOT FORCE THE SERVO AGAINST THE STOP. DOING SO WILL DAMAGE THE SERVO.

1.4 Turn the medium knob slowly and carefully to the left Counter Clockwise (CCW). With regards to any possible mechanical changes you made during 1.3 above, it should perform correctly.

STEAM REGULATOR SERVO *

2.1 Turn the large knob to the left (CCW) the servo will rotate CCW and should close the steam regulator valve.

If it goes the wrong way you will need to reverse the mechanical connection. *

If the large knob wants to make the servo move too far, i.e. over shutting the regulator, put the connecting rod into a servo arm hole closer to the middle of the servo arm. If it does not move far enough move the rod to a hole further out.

N.B DO NOT FORCE THE SERVO AGAINST THE STOP. DOING SO WILL DAMAGE THE SERVO.

2.2 Turn the large knob to the right to check the servo opens the steam regulator far enough.

*** IF MECHANICALLY CHANGING THE SERVO CONNECTIONS IS NOT POSSIBLE, THERE IS A SUITABLE LOW COST IN LINE SERVO REVERSING MODULE AVAILABLE FROM RCS.**

Make sure the TX is OFF & both knobs are in the middle. This is the same as the throttle & elevator sticks on a regular stick R/C being centered. . You can feel the click when twisting the medium knob just like the big throttle knob.

Turn TX-9 hand piece ON before the loco. When the loco is linked, turn the big knob fully to the left (CCW).

Once steam has been raised select the direction of valve gear with the small knob.

Then turn the big knob CW. That is like raising the throttle stick on a conventional stick R/C.

Turn the big knob CCW to slow the loco. All the way CCW will bring the loco to a stop.

You can have a faster stop by centering the valve gear control knob. Then make sure the big knob is also fully CCW.

The Bind button doubles as a whistle control with a servo on Ch # 5. It starts off at wherever the small knob is set and when pressed the servo goes fully CCW. It snaps back to the start point when released.

Or you can control it proportionally. You can actually play the whistle control if you wish.

Four pushbuttons (F1, F2, F3 & F4) are used to control half servo movement functions.

It is possible to have directional head & tail lights with the addition of a # 2-W-S connected in parallel with the valve gear servo on Ch # 3. How to wire that feature is shown in the # 2-W-S instructions. (# HT-7351 required).

Turn OFF the loco BEFORE turning OFF the TX-9 handpiece.



TURNING TX-9 ON.

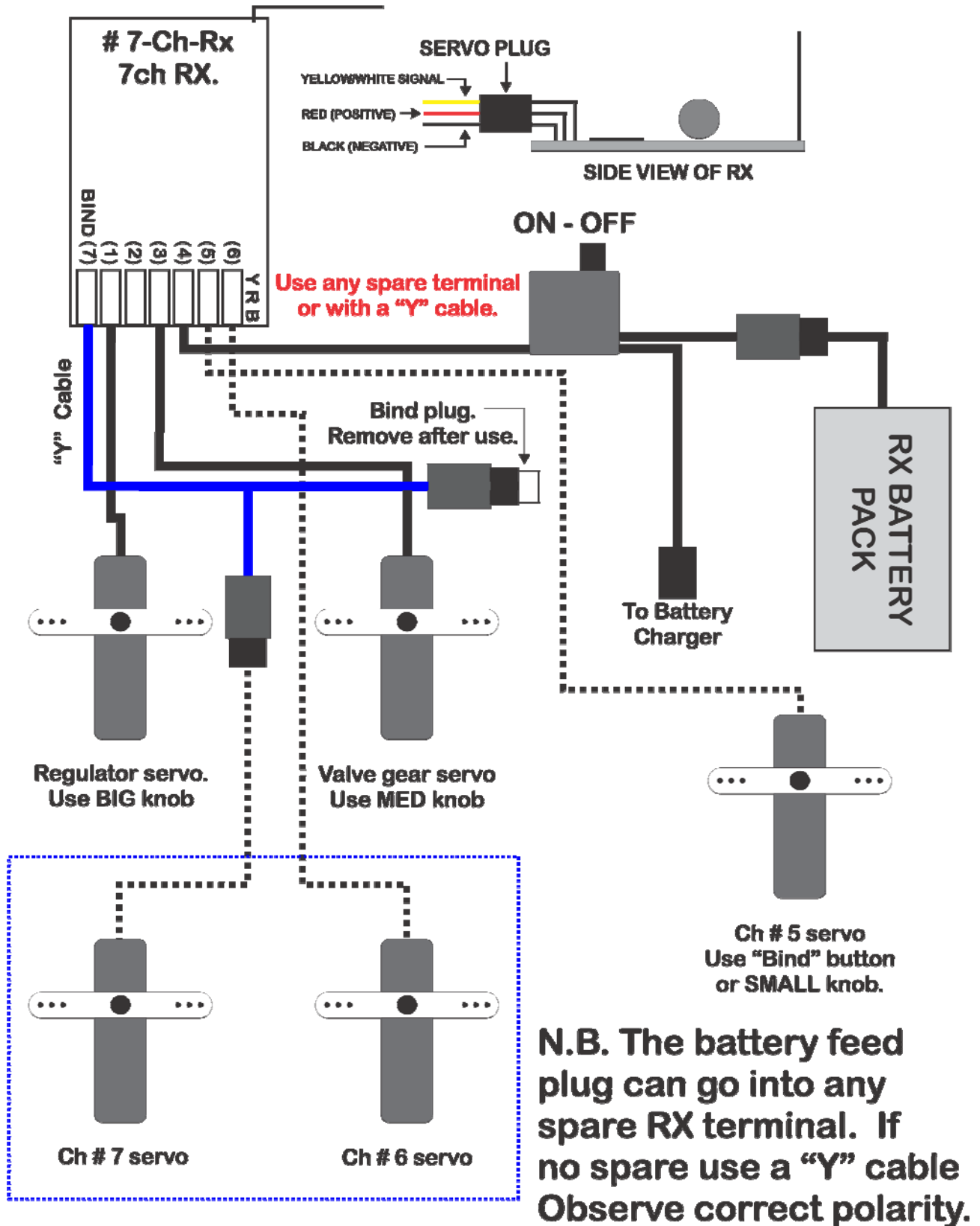


SETTING THE VALVE GEAR FOR FORWARDS.



SETTING THE VALVE GEAR FOR REVERSE.

CONNECTING SERVOS FOR 7-Ch-Rx.



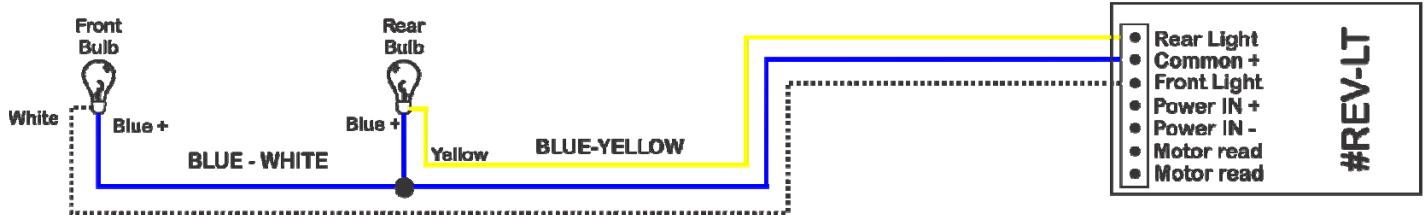


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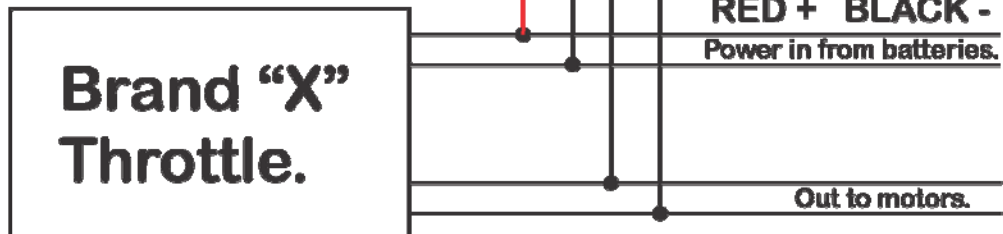
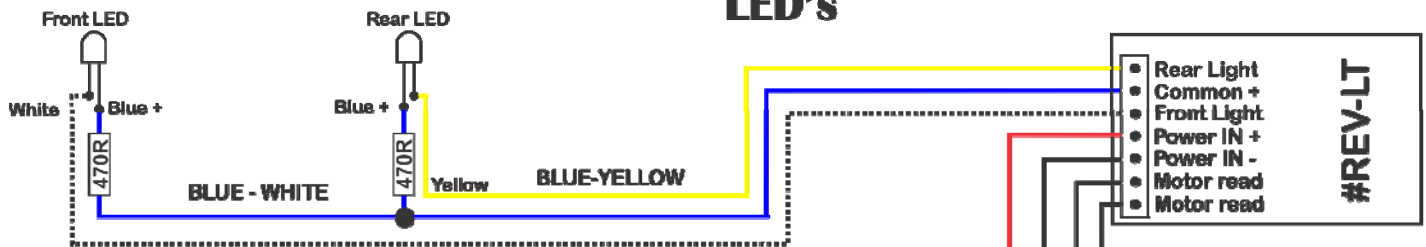
WIRING THE RCS #REV-LT FOR ANY ESC WITHOUT LIGHTS:

Incandescent bulbs



When using light bulbs you must match the bulbs with the traction voltage. Diode lights must have a suitable dropping resistor fitted in the + circuit.

LED's



USING THE TX-9 WITH A CENTRE OFF ESC.

The TX-9 is ideal for use with RCS **CENTRE OFF** ESC's such as the VIPER-10-14 & VIPER-10-24.

CAUTION!!! DO NOT USE WITH ANY RECEIVER WITH A FAILSAFE THAT SENDS SERVOS TO LOW POSITION.

Before you switch the system on, make sure the large throttle knob is in neutral.

The direction knob will not be used. Unless you want to run a second loco at the same time. Use Ch # 3 in 2nd loco.



CENTRE OFF NEUTRAL



To drive forwards. With the ESC in neutral, twist the knob to the right.



To drive in reverse. With the ESC in neutral, twist the knob to the left:

CENTRE OFF CONTROL.

FORWARDS - SPEEDING UP.

To select forwards direction twist the knob from neutral slowly clockwise (CW) to the right.

The Front LED will come on just as the loco speeds up following the knob setting. Requires a # REV-LT

SLOWING DOWN. Turn the knob back to the left (CCW) to set desired speed.

STOPPING. . Completely stop the loco by bringing the knob back to neutral.

REVERSE - SPEEDING UP.

To select reverse direction twist the knob slowly to the left (CCW).

The Rear LED will come on just as the loco speeds up following the knob setting. Requires a # REV-LT

SLOWING DOWN. Turn the small knob back to the right (CW) to set desired speed.

STOPPING. . Completely stop the loco by bringing the small knob back to neutral.

SHUTTING DOWN. When you have finished operating, turn off the loco(s) before the TX. If wired to do so the loco(s) if left ON, the headlight will start blinking to indicate the loco is not receiving a TX signal.

4. USING THE TX-9 WITH AN RCS "LOW OFF" ESC using AV1 program.

The TX-9 can be used with RCS LOW OFF ESC's such as the RCS # OMEGA-3v7.

This TX-9 hand piece is essentially a 7 channel stick R/C in a smaller case.

Make sure the large throttle knob is fully CCW (OFF) and medium knob is centered before you switch the system on.

Switch on the TX-9 first & then the ESC. (Unless binding)

1. The large knob controls channel # 1, the throttle. Make sure the knob is fully CCW before switching on. This is the same as the Channel # 1 stick being fully down. Ignore the Centre "click".

2. The small knob is the same as a Ch # 3 elevator stick.

3. From neutral, set the medium sized knob to the direction you want and return knob to neutral. CW for forwards.

4. Twist the large throttle knob to the right (CW) to accelerate.

5. To slow down twist the large knob to the left (CCW) until desired speed is reached.

6. To stop loco turn the large knob fully to the left (CCW).

Throttle must be at OFF before changing direction. To return to neutral, turn the medium knob to the left (CCW) then return knob to neutral.

7. To select reverse direction turn the medium knob to the left (CCW) then return knob to neutral.

To speed up, slow down & stop in reverse, repeat steps 4, 5, 6, & 7.

The # OMEGA-3v7 has directional lights and 4 x sound triggers. F1, F2, F3 & F4.

If the directional lights are incorrect, swap over the wiring to them so they match the loco speed and direction.

If your ESC or Rx does not have directional lights, the # DSM2-EM(AB) RX has directional LED lighting outputs. OR: RCS has a small add on module # **REV-LT** that reads the speed and direction of the ESC & switches lights accordingly.

The other functions are likely the same as they are for RCS if your centre off ESC has them fitted.

If there are no sound triggers you can add a # **2-W-S** to channel # 2 for two sound triggers.

Add another # **2-W-S** to channel # 4 for two more sound triggers.