

TOWER HOBBIES®

SYSTEM 3000™

2TXP 2-CHANNEL AM RADIO CONTROL SYSTEM

INSTRUCTION MANUAL FOR R/C CAR AND BOAT USE

Before I say anything else, I'd like to say "Thank you!" for making Tower Hobbies® System 3000™ 2TXP your choice in 2-channel pistol radios. Tower Hobbies' radio systems, it's designed to provide you with many hours of trouble-free operation, as well as a good, solid value in car and boat systems.

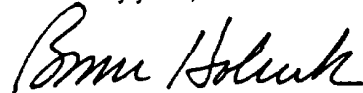
Like our other System 3000 systems, the 2TXP features Surface Mount Technology (SMT) circuitry in the compact 2TX-R receiver. Exceptional and reliable, SMT circuits "hang tough" against the slam-bang action that fast-paced R/C can produce. In addition, both the 2TX-R and the transmitter are robotically assembled, to ensure your radio system is as near perfect as we can make it.

You may get a hint of the care and quality built into the 2TXP from its styling. But pick it up for the first time, and you'll know how quality feels yet surprisingly lightweight, and balanced to keep you in firm control hour after hour. Comfort contributes, as well, from the way the grip fits one hand, the firm, virtually slip-free surface a rubber steering wheel provides the other.

Go beyond comfort, quality and durability, and you still have performance to enjoy. Steering and throttle control are just the start: there are proportional trims for fast centering, a knob for adjusting steering rate to your style – and numerous features designed simply for your ease.

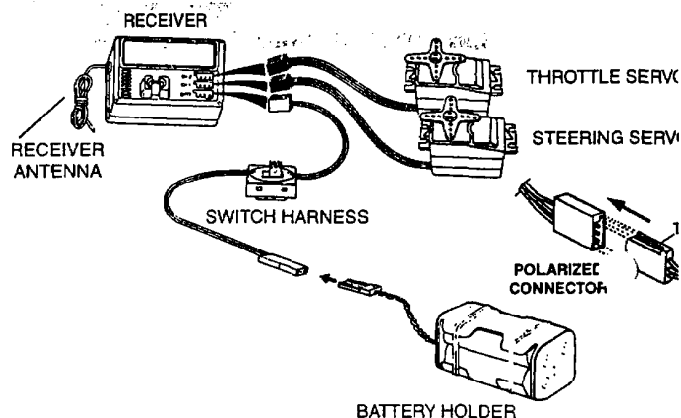
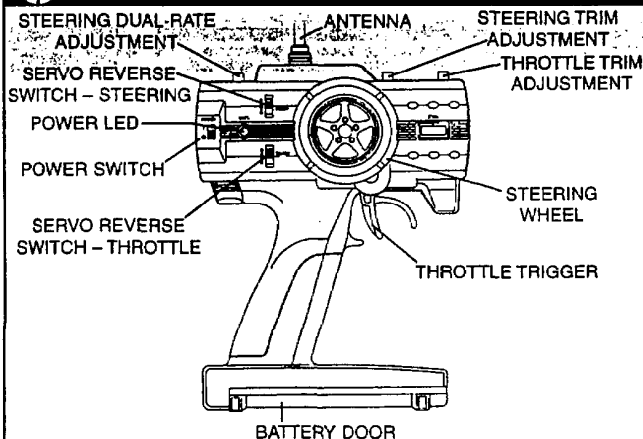
An LED power meter for "at-a-glance" reference. Servo reversing for easy installation. A quick-change battery set-up for the transmitter – a Battery Eliminator Circuitry in the receiver. A built-in recharging jack, just in case you switch to optional NiCd batteries. Mini-switch harness, for flag, support and help from our Tower Hobbies' Tech Staff, 1-year warranty – the 2TXP has them all. And as a 2TXP owner, you have it all, too. Enjoy 2TXP – and thanks again for choosing Tower Hobbies!

Sincerely yours,



Bruce R. Holecek
Founder and Chief Executive Officer,
Tower Hobbies

QUICK REFERENCE GUIDE



NOTE: This Quick Reference Guide is a condensed version of all information given in this manual. We strongly recommend you first read the entire manual before operating your System 3000 R/C system.

1. Install 8-AA alkaline batteries into the transmitter's battery holder located in the base of the transmitter. Be sure to install the batteries in the direction shown on the battery holder.
2. Install 4-AA batteries in the receiver battery holder.
3. Connect servos, 4-cell battery pack and switch harness to the receiver as shown above.
4. Turn on the transmitter, then turn on the receiver switch harness.
5. Center the steering and throttle trim adjustments and make sure all servos operate according to transmitter movements.
6. Turn off the system, receiver first, then transmitter.
7. Install the entire radio system into your model as shown in the model's instruction manual (see above for proper channel usage).
8. If you need to reverse the direction in which a servo rotates, locate the servo reversing switch for that particular channel on the face of the transmitter and slide it to the "R" position.
9. With the transmitter antenna collapsed, you should maintain smooth control of your model from at least 30 feet away. If not, refer to 2TXP's Troubleshooting Guide on page 3.

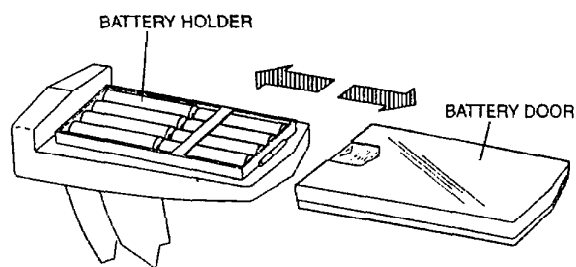


FIGURE 1

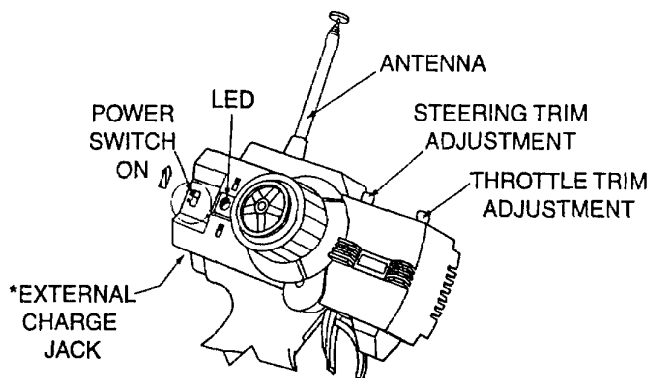


FIGURE 2

The transmitter (Tx) requires 8 "AA" batteries. Do not mix old and new cells. Do not mix alkaline, standard (carbon-zinc) or rechargeable (nickel-cadmium) batteries. To install the batteries, slide open the battery door on the bottom of the Tx (see figure 1). Install 8 "AA" batteries in the holder following the configuration molded into the case, making sure to note the proper polarities on each cell. Close the battery door.

Turn the Tx power switch on (see figure 2). The red "BATT" LED should illuminate. If not, turn off the Tx and check the configuration of the batteries to make sure each cell is firmly in place and in the proper direction. If the red LED blinks, the batteries are low on power and should be replaced. **DO NOT OPERATE AN R/C VEHICLE WITH LOW BATTERIES AS IT COULD RESULT IN REDUCED RANGE AND POSSIBLE LOSS OF CONTROL OF THE MODEL.** Install the Tx antenna by threading it firmly into place in a clockwise direction. *The Tower Hobbies 2TXP is equipped with an external charge jack for re-charging optional NiCd or NiMH rechargeable batteries. **Never attempt to re-charge alkaline or other non-rechargeable batteries.** See your hobby dealer and ask for a Tx NiCd conversion kit.

During normal conditions, the **range**, or safe operating distance from the Tx to the Rx is as far as you can clearly see the model. The 2TXP operates on the 27 or 75MHz frequency bands. There are 30 different channels in the 75MHz band ranging from 75.410MHz (Ch61) through 75.990MHz (Ch90) and six channels in the 27MHz band ranging from A1 (26.995Mhz) to A6 (27.255Mhz). For safety reasons, you must always be aware of what channel you are using so that no two radios in the same area are **EVER** operating on the same frequency simultaneously. Mount the **frequency flags** that are supplied with your R/C system onto your Tx antenna so that other modelers at the track can identify your channel number.

INSTALLATION

SERVO

Because there are a variety of specific applications for servos in R/C modeling, different servos are designed for different applications. Tower Hobbies offers a large line-up of servos which you can choose from (see page 4). For each servo, use a servo horn long enough to accommodate the entire range of movement for that particular control.

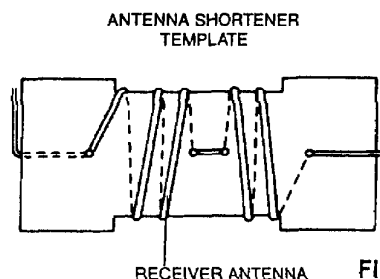


FIGURE 3

RECEIVER, SWITCH HARNESS AND RECEIVER BATTERY (refer to diagram in the Quick Reference Guide)

Insert 4-AA alkaline batteries into the receiver **battery holder** in the direction shown on the battery holder. After the servos and receiver are mounted into your model per the model's manual, connect the servos and switch harness to the receiver as shown. The servo connectors are polarized to prevent improper connection, but do pay close attention when connecting them to the receiver. The black wire goes toward the outside edge of the receiver case. If you are using an **electronic speed control (ESC)** connect the ESC's throttle lead to channel 2 in the receiver and refer to the ESC's instructions for further set-up details (the battery holder and switch harness can be omitted when using an ESC). Center the steering and throttle trim adjustments (see figure 2). Turn on the Tx, then the Rx switch harness. Make sure all servos operate according to the movement of the Tx controls. Turn off the Rx switch harness or ESC, then the transmitter and be careful not to move the servo output arms from their centered position during installation.

Completely un-wind and route the receiver antenna according to the model's instructions. Do **NOT** cut the antenna or you may lose adequate operational range. If your antenna is too long to route through your model, make an antenna shortener out of

cardboard with the template provided in figure 3. Keep the antenna away from moving parts and the power wires in your model to avoid interference. Also, use capacitors on your electric motors as described in your model's instructions to help eliminate noise in electric cars.

STEERING AND THROTTLE

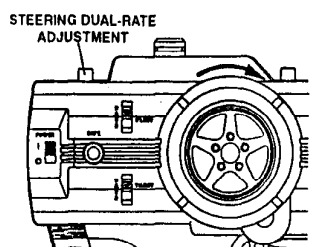


FIGURE 4

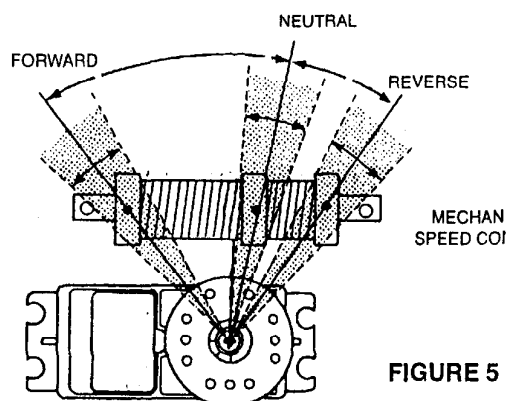
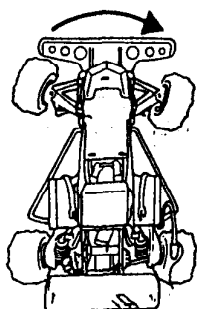


FIGURE 5

Steering: Move the steering control left and right. Be sure there is no binding and that the car's steering controls move in the proper direction (see figure 4). If the steering wheel is turned to the right but the car turns left, move the steering reversing switch to the "R" position, and vice-versa.

Steering Dual Rate: This adjustment (see figure 4), is used to fine tune the steering servo throw. The dual rate knob allows you to decrease the amount of throw that the front wheels have. It also allows you to increase the throw of the front wheels for steering. If the vehicle is understeering (pushing), increase the amount of throw to the front wheels using the dual rate knob. If the vehicle is oversteering (spinning out), decrease the amount of throw to the front wheels using the dual rate knob.

Throttle: Squeeze the throttle trigger. Be sure that your motor can reach full throttle (carburetor fully open on a gas engine or wiper on mechanical speed control moves to furthest forward contact for electric models). If the throttle servo moves in the wrong direction, move the throttle reversing switch to the "R" position. With the trigger released, the carburetor should be approximately 1/16" for idling. The car should brake when the trigger is pushed away. Adjust the idle stop screw on the carburetor so the engine dies when the brake is applied (see the model's instruction manual). With mechanical speed controls, the wiper should be between the forward and reverse contacts when at rest, and should touch the full reverse contact when the trigger is squeezed (see figure 5).

Range test the radio system prior to operation. With the Tx antenna collapsed, you should be able to smoothly control movement of all control surfaces on your model from at least 30 ft. on the ground. If not, refer to the 2TXP's Troubleshooting Guide for directions.

TROUBLE SHOOTING GUIDE

Problem:	Possible Cause:	Solution:
Short range	Collapsed Tx antenna	Fully extend the Tx antenna
	Interference	Check frequencies in area, check Rx installation
	Rx antenna poorly routed	Re-route Rx antenna
	Low Tx or Rx battery	Replace the batteries
	Rx or Tx out of tune	Send radio to Hobby Services for tuning
	Severed Rx antenna	Send radio to Hobby Services for repair
	Crash damage	Send radio to Hobby Services for repair
Short runtime	Low Tx or Rx batteries	Replace the batteries
	Binding servos causing excess battery drain	Free binding components in pushrods or moving surfaces, see model's manual
Tx meter low	Tx batteries need replaced	Replace the batteries
Tx meter beyond red zone but servos do not function	Rx batteries need replaced	Replace the batteries
	Rx switch in off position	Turn on switch harness
	Switch harness connected incorrectly	See quick reference guide
Interference or servos glitching	Another Tx is on your channel	Do not operate your system until other system is not in use
	Outside interference (Pagers, transmission towers, etc)	Check your local R/C club for conformation of dangerous frequencies in your area
One glitching servo	Bad servo	Send servo to Hobby Services for repair

Transmitter		Receiver	
Channels:	2-channel	Channels:	2-channel
Transmitting frequency:	27, 75MHz	Receiving frequency:	27, 75MHz AM band
Modulation type:	AM band	Operating Voltage:	4.8V to 8.4V(BEC)
Current drain:	Approximately 170mA	Dimensions:	1.87" x1.24" x0.62"
Output power:	less than .75W	Receiving range:	350 yards

 SERVOS AND REPLACEMENT PARTS

Stock #	Description	Torque	Speed	Weight	Dimensions
TOWM4505	SYS3000 TS-10 Micro Servo	34.40oz.-in.	.18 sec @ 60°	0.60 oz.	1.1 x 0.5 x 1.1"
TOWM4510	SYS2000 TS-5 High Speed Nano Servo	16.70oz.-in.	.11 sec @ 60°	0.34 oz.	0.9 x 0.4 x 0.8"
TOWM4525	SYS3000 TS-53 Standard Servo	44.00oz.-in.	.23 sec @ 60°	1.31 oz.	1.6 x 0.8 x 1.4"
TOWM4545	SYS3000 TS-69 Standard BB Servo	41.25oz.-in.	.22 sec @ 60°	1.59 oz.	1.6 x 0.8 x 1.4"
TOWM4565	SYS3000 TS-75 1/4 Scale BB Servo	110.00oz.-in.	.19 sec @ 60°	3.63 oz.	2.3 x 1.1 x 2.0"
TOWM5210	SYS2000 TS-80 Giant Scale BB Servo	275.00oz.-in.	.19 sec @ 60°	5.36 oz.	2.6 x 1.2 x 2.3"
TOWM5215	SYS2000 TS-71MG Super Torque Servo	110.00oz.-in.	.23 sec @ 60°	2.12 oz.	1.6 x 0.8 x 1.5"
TOWM5220	SYS2000 TS-67 Standard 2BB Servo	42.60oz.-in.	.20 sec @ 60°	1.62 oz.	1.6 x 0.8 x 1.4"
TOWM5225	SYS2000 TS-65 Standard HT 2BB Servo	77.00oz.-in.	.16 sec @ 60°	1.73 oz.	1.6 x 0.8 x 1.5"
TOWM5230	SYS2000 TS-63 Low Profile Retract Servo	90.80oz.-in.	.50 sec @ 60°	1.24 oz.	1.7 x 0.9 x 1.0"
TOWM5235	SYS2000 TS-59 Low Profile Aileron Servo	61.10oz.-in.	.18 sec @ 60°	1.23 oz.	1.7 x 0.9 x 1.0"
TOWM5240	SYS2000 TS-35 High Power Mini BB Servo	55.00oz.-in.	.14 sec @ 60°	0.95 oz.	1.3 x 0.7 x 1.2"
TOWM5241	SYS2000 TS-35MG High Power Mini Servo	55.00oz.-in.	.14 sec @ 60°	1.09 oz.	1.3 x 0.7 x 1.2"
TOWM5245	SYS2000 TS-15 Sub Micro Servo	15.10oz.-in.	.20 sec @ 60°	0.49 oz.	1.0 x 0.5 x 0.9"
Note: All servos equipped with universal connector. Torque and speed ratings based on 4.8V input.			To order any System 3000 servos or replacement parts, please call Tower Hobbies at 800-637-6050, or see the information below		

FCC STATEMENT

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions.

- (1) This device may not cause harmful interference.
- (2) This device must accept any interference received, including interference that may cause undesired operation.

 WARRANTY AND REPAIR

1-YEAR LIMITED WARRANTY

*U.S.A. and Canada Only

Tower Hobbies warrants this product to be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. During that period, Tower Hobbies will, at its option, repair or replace without service charge any product deemed defective due to those causes. You will be required to provide proof of purchase (invoice or receipt). This warranty does not cover damage caused by abuse, misuse, alteration or accident. If there is damage stemming from these causes within the stated warranty period, Tower Hobbies will, at its option, repair or replace it for a service charge not greater than 50% of its then current retail list price. Be sure to include your daytime telephone number in case we need to contact you about your repair. This warranty gives you specific rights. You may have other rights, which vary from state to state.

For service on your Tower Hobbies product, warranty or non-warranty, send it post paid and insured to:

HOBBY SERVICES
1610 Interstate Drive
Champaign, IL 61821

CONTACTING TOWER HOBBIES

Via Phone: Toll-Free in the US and Canada: 800-637-6050
Outside the US and Canada: 217-398-3636
Toll-Free FAX in the US and Canada: 800-637-7303
FAX Outside the US and Canada: 217-356-6608

Via The Internet: E-Mail: info@towerhobbies.com
World Wide Web: <http://www.towerhobbies.com/>

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