

To whom it may concern -

This document will attempt to tell you everything you need to know to make TOPO do his thing.

We are supplying two TOPO'S, #3 and #5. The # is on the control panel between the green & red buttons. Green turns on, red turns off, or pressing the top of the head turns him off. #3 receives on 27.145 MHz, #5 on 72.960 MHz. Each has a corresponding grey transmitter box for the Apple. Also supplied is a single "red box" transmitter on 72.960 MHz for #5. Using this ~~does not~~ require the use of an Apple. Trim ~~the~~ each wheel with the trim levers on top of the red box.

CHARGE BOTH TOPOS AND THE RED BOX OVERNITE before using. This should let either one last about all day. Otherwise, who knows? Low batteries are indicated by the right-hand LED on the control panel going from green to green-red to red. You will probably start noticing erratic behavior by then, anyway. On the red box, "forward" is stick to upper-left (hold the box canted). On Apple joystick, "forward" should be straight ahead with the stick. If you are using the FORTH joystick routine, hold the box reversed 180° (i.e. lettering on top, but upside down from the operators perspective).

The Apple uses the small interface ~~box~~ ^{card} (enclosed) to generate signals for the desired transmitter (grey box). This card (it has a large 9513 chip & 3 small IC's) plugs into slot #5 of the Apple, and the grey box plugs into the card.

A joystick routine is supplied on the FORTH diskette. To run it, boot the FORTH disc & wait ~1 minute. After the A> prompt, type INIT (return), then type JOY3_(return). You should see numbers flashing by & changing as you move the joystick. With the grey box turned on and TOPO turned on, the stick should control TOPO. To halt the routine, hit (return).

If you really care about precision computer-controlled movement (see "VAR3," "VAR5" below), you need to switch the motors from high speed to slower/calibrated speed. Open the arm/access panel and find the add-on board at the front. There is a 8-wire connector from the add-on to the main board, and a toggle switch dangling from one of the wires. This controls motor speed. It's set on high speed now. If you forget which speed you're on... TOPO will "jump" during power-up when you're set at high speed.

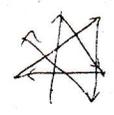
To run LOGO, first boot the system with the green-labelled LOGO-language disk. After the ? prompt comes up (~2 min), insert the second LOGO disk (TOPO^{Androbot}LOGO) and type READ_ "TOPO (return). After ~2 min, the ? prompt should reappear and you should be ready to run. Here are the commands you should need:

| TOPO | screen turtle | both | |
|------|---------------|------|---|
| TFD | FD | F | move forward n steps, i.e. TFD 100 |
| TBK | BK | B | " backward " " " TBK 100 or B 100 |
| TRT | RT | R | turn right n degrees, i.e. TRT 90 for a right angle |
| TLT | LT | L | turn left " " " TLT " " " " |

HOME - center the screen turtle
 CS - clear screen
 ↑G - cancel ~~run~~ currently running command
 ESC - backspace + erase
 ← → - move cursor, type to insert text
 ↑P - previous line ↑N - next line

A typical repeat loop - REPEAT 20 [F 100 R 135]

will do



etc. on the screen, and on the floor.

We just now created a joystick routine that runs in LOGO. It works OK, but not great - it takes 1/2-1 second for TOPO to respond to a command. Bad for confined spaces, but OK in the open and you don't have to reboot between LOGO + FORTH to have a joystick. To run joystick in LOGO, first type READ_ JOYSTICK (once) to read the routine (you could best do this right after READ "TOPO). To run the routine, type JOYSTICK. To exit, hit ↑G.

If, ~~you~~ for some strange reason, you want to change definitions or create new ones (actually, creating some canned loops, etc. might be nice), type TO_name. Edit the file with cursor, ESC, ↑P, ↑S. Hit ↑C to define, ↑G to abort.

There are calibration tables for each TOPO to tune it to go straight, turn more precisely, etc. After READ "TOPO, type READ "VAR3 for TOPO#3, or READ "VAR5 for TOPO#5.

That's all I can think of. Any questions or problems, don't hesitate to call me.

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