INSTANT SOFTWARE

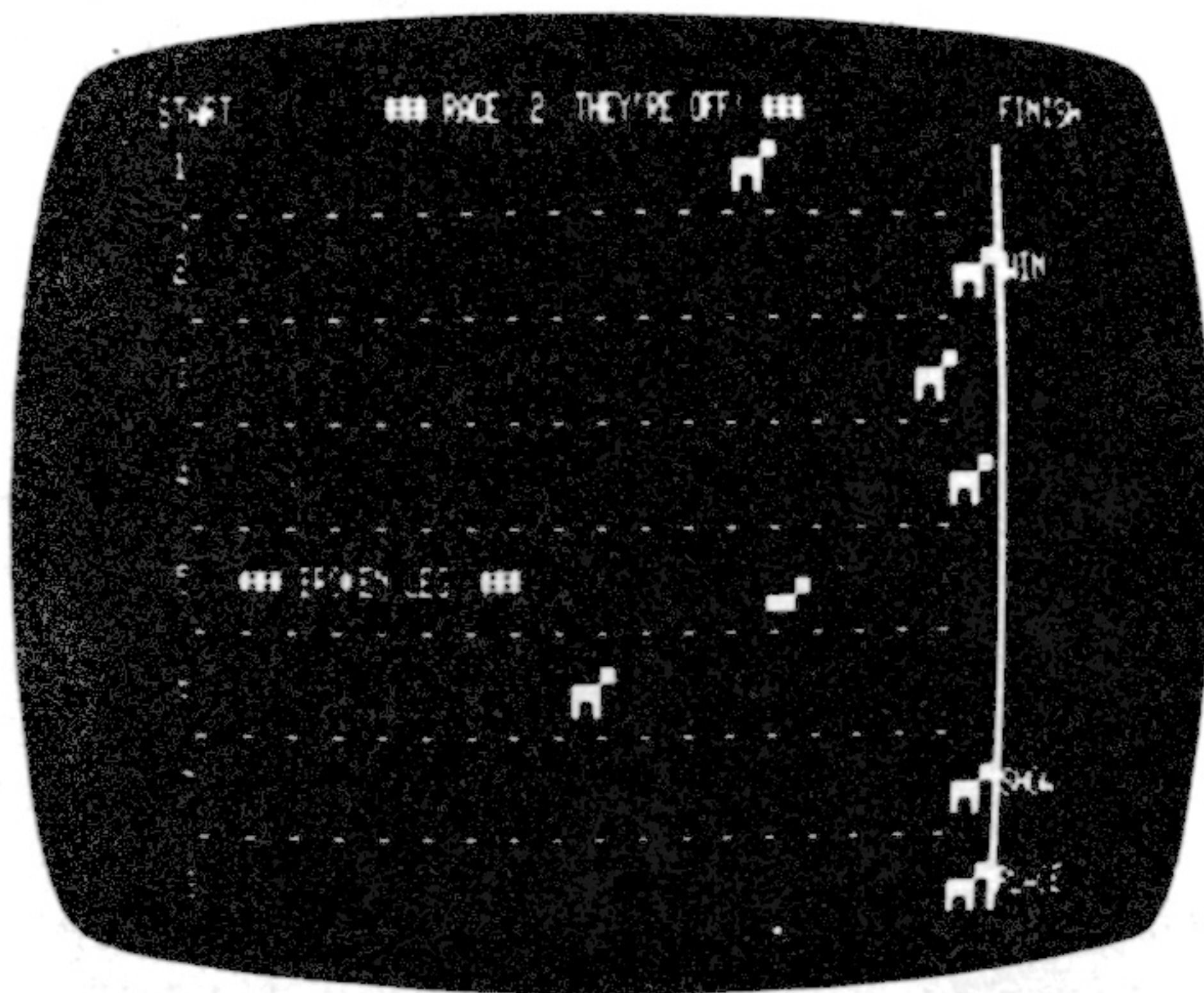**Designed for use on**
TRS-80*
4K
LEVEL II
16K
LEVEL II

Demo II

- Tic-Tac-Toe
- Time Trials
- Maze
- Hangman
- Wheel of Fortune
- Hurricane
- Bugsy
- Horse Race

* A trademark of Tandy Corporation

DEMO II

Instant Software again gives you more fun for the bucks with the Demo II package. This extraordinary collection of programs includes:

Tic-Tac-Toe—Fun for any member of the family, the program features three levels of difficulty.

Time Trials—Beat the clock as you drive your race car through curves, chutes and chicanes.

Maze—Search through the maze for the hidden, secret square (for one or two players).

Hangman—Guess the secret word or get hanged (for one or two players).

Wheel of Fortune—Choose your number, place your bet and see if you can break the bank (for one to eight players).

Hurricane—This program lets you track and monitor hurricanes anywhere in the world.

Bugsy—Can you build your Z-80 bug before the computer does?

Horse Race—Place your bet and choose your horse for a win, place or show in the race (for 1 to 100 players).

DISCLAIMER

Nothing in this world is completely perfect, including this program. I say this despite the yeoman efforts of the programmer who originally wrote and debugged it and the people in the Instant Software lab who worked far into the New Hampshire nights, all toward providing you with the best possible program.

Please enjoy it. If you come up with any improvements, you should let me know so I can pass along your ideas to other users.

Please note that there is no warranty expressed or implied that this program is going to do anything other than load and work. We don't guarantee that you will enjoy the game programs, that you will make or save money with business programs, or learn anything from educational programs. We don't guarantee that you will lose weight with a dieting program or avoid disasters with a biorhythm program. But if any program causes suffering (other than acute aggravation) or misfortune, we want to hear about it by mail, not through your lawyer. You are entirely on your own in using the programs.

If you run into problems while using a program, you can communicate with us . . . preferably by mail and we'll try to help out. If a problem turns out to be commonplace, we'll put the update information in MICROCOMPUTING. You are supposed to read MICROCOMPUTING anyway.

Wayne Green

TRS-80 LOADING

Unless otherwise indicated on the labels, Level I will be on one side of the cassette and Level II on the other. Make sure that your system is on, the recorder is plugged in, and the tape is rewound. Punch out the tabs on the cassette to prevent accidental erasure. Now insert the tape into your recorder and press PLAY.

Type NEW and press ENTER (E). Check the available memory by typing P.M.(E) for Level I or ?MEM(E) for Level II. Now press PLAY on the recorder and type CLOAD(E). In about ten seconds two asterisks should appear on your screen, with the right-hand one blinking. If it doesn't blink, you're not loading.

The TRS-80 is very sensitive to audio levels. If the program doesn't load, rewind the tape, adjust the volume level, and repeat the loading sequence above.

After each load, run a memory check and note how much memory the program uses.

Should you be unable to load, check the cassette with another system. If it's still no go, return it to:

Instant Software Miseries
Peterborough NH 03458

We'll check to see whether it was the cassette or your system that was awry and get you a replacement.

ACCIDENTAL ERASING

Until you've tried it, you won't believe how easy it is to screw up a data cassette. For instance, the magnet in any loudspeaker can do a fantastic job of removing part of the data . . . and you'll find loudspeakers in portable radios, cassette recorders, TV sets, etc. Power supplies will do even better. No one can even estimate how many tapes have been wiped out by these little TRS-80 power units . . . or by putting cassettes on top of the monitor, where its electromagnetic field can weave its subtle work.

Do not treat your cassettes casually. Give them extra care and attention. Keep them away from anything electrical, magnetic or dusty at all times.

Well, accidents can happen, even to the most careful of us. One of your kids can try out a data cassette and push the record button . . . etc. You should ward this off by punching out the tabs on the back of the cassette to prevent recording. If things do go awry, we'll redo your cassette for you for a nominal service charge of $2. Just send back the original cassette, a note as to what went wrong (we like to keep statistics) and the $2. We'll fix it up for you and get it back as quickly as we can. Try not to get worried if it takes three weeks . . . one week each way for the post office (when they are up to that rigorous a schedule) and a week for us to horse around.

COPYRIGHT

IMPROVEMENTS

There are very few programs which cannot be improved. If you work out some improvements to this program, it could be worth your while to send them in for possible use in an updated version of the program. Those who contribute to an updated program will share in the royalties which result. Instant Software Inc., Peterborough NH 03458.

DEMO II

Continuing our policy of providing the most programs for the dollar, Instant Software presents the Demo II package. This collection of eight separate programs includes:

Tic-Tac-Toe — Play an old favorite with varying levels of difficulty.

Time Trials — Drive your race car through curves, chutes, and chicanes, as you try to beat the clock.

Maze — Search through the maze for the secret square (for one or two players).

Hangman — Guess the secret word or get hanged (for one or two players).

Wheel of Fortune — Place your bet and watch your number come up.

Hurricane — You can track and monitor a hurricane, find out if it will hit your area, and compute the probable force of the storm.

Bugsy — Can you build your Z-80 bug before the computer does?

Horse Race — Place your bets and choose your horse for a win, place, or show in the race.

TIC-TAC-TOE

You've seen tic-tac-toe games before. This one is not only easy to use, but also has varying levels of difficulty. Children and adults of all ages can have fun outsmarting the computer.

At the start of the program, type in your name. The computer will next ask how good an opponent you want it to be: 1 is awful, 2 is mediocre, and 3 is superior. Enter the appropriate number.

You will have the X's and the computer will have the O's. To move, enter the number that corresponds to the square you want to move to.

The squares are numbered like this:

```
 1 | 2 | 3
---+---+---
 4 | 5 | 6
---+---+---
 7 | 8 | 9
```

After you enter your move, the computer will make its move. At the end of the game it will announce the winner. The program also checks for illegal moves.

TIME TRIAL

This game is a computer simulation of the time trials that race cars must go through to gain a place on the starting grid for major road races. You'll have to drive your car through the course against the clock.

The car is controlled from the keyboard. Speed is changed by the up arrow (decelerate) and the down arrow (accelerate). There is no limit to how fast you can make your car go.

Direction is controlled by the left and right arrow keys, with the total amount of change being a direction function of velocity. If the car is moving quickly, then pressing the right or left arrow will cause a large amount of movement. If the car is moving slowly, then there will be only a slight change in direction.

To make the game more challenging, the race course can be made narrower. At the beginning of the program, enter a number from 6 (difficult) to 15 (easy). This will determine how narrow the course will be.

At the end of a run through the course, you'll see your time. You and your friends can have a contest and see who can get through the course in the shortest time.

MAZE

Can you find the hidden home square? It's in the maze somewhere. All you have to do is send your man through the maze and hope that you find the square before your opponent does.

The computer will first ask if you want the one or two player version. In the two player version, the mazes have different home squares. The computer will display both mazes and signal each player's turn by name.

To start the game, choose an entry point from one of the numbers on the side of the maze. You can maneuver your man around the maze by using the keys U (up), D (down), L (left), or R (right). You can only move one square at a time.

If your path is not blocked, you can continue moving through the maze. If your man is blocked by a wall, then your opponent has a chance to move his man.

If you have examined a section of the maze and are blocked from going into the rest, you can exit the maze and pick a new entry point.

At the end of the game, the losing player will be shown his home square. The computer will then ask if you want another game: 0 = no, 1 = yes.

HANGMAN

Here's the newest way to play the old favorite word game. If you can guess all the letters in the secret word you win. Miss and you're hanged.

The computer will first ask for your proficiency level: 1 is super, 2 is good, 3 is average, and 4 is for novices. The better your proficiency, the fewer misses you have in guessing a word.

The computer will next ask if you want to enter your own word or let it choose one from the 180 it has in its memory. If you choose to enter your own word, one player will type in a word (it will not be shown on the screen as it is being typed) and the other player must try to guess that word. The secret word should have a maximum length of 10 characters.

A wrong guess, depending on how many misses you have, will add to the hangman. Miss the word and you're hanged.

WHEEL OF FORTUNE

How friendly are you with Lady Luck? Find out with the scintillating Wheel of Fortune program.

At the start of the program, type in your first name, full name, and the date.

After demonstrating the wheel, the computer will give you the instructions for the game and supply you with an initial bankroll (between $50 and $100).

You have a choice of playing the straight or "crooked" version of the game. If you choose the straight version, your bankroll will be doubled ("HONESTY PAYS") and the game begins.

To play, choose either one of the fifty numbers on the wheel (payoff is 50 to 1) or a number in the first (1–25) or second (26–50) half of the wheel (payoff is 2 to 1). You can then place your bet.

The spinning wheel is simulated by a series of random numbers. The wheel makes five spins,

going slower on each spin. The winning number appears at the top of the wheel at the end of the last spin.

The amount won or lost and the balance are displayed on the screen.

At the end of each turn, you can quit. The computer will print you a check for your winnings, or you can play the crooked version.

In the crooked version, an arrangement has been made with the croupier. No matter what number comes up on the wheel, you'll always see your winning number. Just pick any number. Your entire bankroll will be bet on every turn. After three turns, you'll own the casino. The computer will present you with the deed to the place.

You can then either quit or go and play the straight version of the game. If you go on to play the straight version, you can't go back and play the crooked version.

If you lose all your money, the computer will sympathize with you and tell you to come back when you have more money.

HURRICANE

Whether you live in an area vulnerable to hurricanes or not, it is interesting, and many times vital, to be able to monitor the hurricanes which occur each year. Using this program, you can monitor a hurricane's status in comparison to your location or any location you choose. In addition, while it is impossible to consistently predict the path of a raging hurricane with any degree of accuracy, it is possible, using your computer, to accurately track the hurricane and make straight line path predictions.

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What It Does

The Hurricane program will provide you with a very accurate monitoring capability. Using the latitude and longitude of your location as its base, and inputting the latitude, longitude, speed, and direction of the hurricane being tracked (normally available through the National Weather Service), it will give the hurricane's precise degree of angle, in degrees from true north, as compared to your location. In addition, it will compute the distance between your location and the hurricane in miles. The program will also tell you whether the hurricane is currently headed in your direction. If the hurricane is traveling in a straight line toward your location, the program will output a hurricane warning and a hurricane condition status number (using the hurricane categories established by the National Weather Service). It will also predict the number of hours until the storm will hit your area.

How the Program Works

Program lines 6 through 82 initialize the Hurricane program and provide the input statements which set up the variables. When entering the degrees of latitude and longitude, do not enter the minutes or seconds. They must first be converted to decimals by dividing them each by 60 and then adding them to the whole degree number.

The critical element of the Hurricane program is built around some mathematical wizardry aptly called spherical trigonometry. Lines 98 to 470 do the majority of the computations. Two basic trigonometric equations are used to calculate the angles and distances, with the rest being conversions in and out of the trig functions. The TRS-80 calculates trig functions using radians. The program includes a degrees-radians conversion routine. This accounts for some of those long numbers mixed amongst the sines and cosines in the program.

Lines 550 through 575 take the calculated bearing, from your location to the hurricane, and produce a verbal direction (e.g., northwest, southeast, etc.).

Lines 1000 through 1070 determine if the hurricane is headed in your direction. If the hurricane is more than 400 miles from you, then the program takes the current direction that the storm is heading in and compares it with the computed direction from the storm to your location. If that direction is within 10 degrees of either side of the straight line between you and the storm, the program will output the hurricane warning. If the hurricane is between 200 and 400 miles from you, 15 degrees of variance is used. If it is between 90 and 200 miles from you, 20 degrees is used. Increasing the angle of variance compensates for the fact that the closer the storm gets to you, the less accurate the prediction needs to be or the greater the chance that the storm will hit your area.

Hurricane Conditions

Five hurricane conditions, called Hurcons were developed by the National Weather Service to advise of a hurricane threat. The Hurcon number is designed to be determined by the amount of time it will take the hurricane to travel from its current location to your location and by the movement velocity (minimum; 50 knots) of the storm center. The Hurcon numbers in Hurricane are strictly determined by the time factor and do not take into consideration the surface wind requirement. Lines 2500 to 2640 calculate the amount of time it will take the hurricane to get to your location and then select the correct Hurcon number. One final note: Hurcons should not be confused with the National Weather Service category of storms. Hurcons do not advise on the intensity of the storm — only the hurricane threat.

The rest of the hurricane program lines are either used for variable explanation (video text) or are informational — as in the complete listing of hurricane conditions.

Modification

You can save memory and personalize the program by entering your location as string variable "II$" in line 7, your latitude as variable "A," and your longitude as variable "G" in line 8. Make sure you delete the appropriate statements in lines 6, 7, 8, and 10 when you enter these variables as part of the program.

Checking It Out

One of the nicest things about using programs from Instant Software is that you don't have to always understand the technical side (e.g., equations, algorithms, etc.) of what you are programming into the microcomputer. With many programs, if you make a small mistake, the TRS-80 will let you know and, hopefully, it will only take a few moments to correct. With the Hurricane program, as with any computer program which uses complex equations, one or more small mistakes in any of the mathematical functions could go undetected. So, be extra careful when entering those numbers and equations.

Global Uses

Hurricane was designed to be used with northerly latitudes and westerly longitudes (e.g., the northern half of the Western Hemisphere, which includes the North American continent. If you would like to go one step further and track typhoons in the South Pacific or snowstorms in Siberia, Hurricane can do that for you, too. There are two basic rules you must use for global calculations:

1. If the storm, or whatever, is located in the Southern Hemisphere, you must input the latitude as a negative number.

2. If the storm is located in the Eastern Hemisphere, you must input the longitude as a negative number.

Any mixture of the above rules may be used. If you live in other than the northern half of the Western Hemisphere, then the same rules apply for entering the latitude and longitude of your location.

Path Prediction

The use of straight line predictions mentioned in the first two paragraphs requires some clarification. Assuming that the earth is round, a straight line between your location and the hurricane would actually travel through the earth. In reality, what we are finding is the shortest distance between two points on the globe and calculating the direction, from true north, which you would have to head toward in order to take that route. The directional calculations are made from both locations in order to provide the necessary information for the Hurricane program.

The straight line path prediction portion of the Hurricane program was written for informational purposes in monitoring a hurricane and not for use in any type of official capacity. Hurricanes are extremely unpredictable, and the straight line predictions will only let you know if the storm is heading in your direction at that very moment. The odds of the hurricane traveling in a straight line toward your location for any long distance are quite slight, though possible. The program will give good results only if you provide it with accurate information.

Exercise Caution

A word of caution is necessary when demonstrating the Hurricane program. People are very gullible, especially when observing information presented on a TV screen. Be careful in demonstrating it — especially if there is an active hurricane in progress.

From Whence It Came

The spherical trigonometric equations used in this program came from an August, 1973 QST article written by Jerry Hall (K1PLP), titled "Bearing and Distance Calculations by Sleight of Hand." Jerry had written the article for amateur radio operators as an aid in accurately pointing their beam antennas toward other amateur radio stations located in foreign countries.

Some Final Thoughts

The spherical trigonometric equations used in Hurricane could easily be adapted for incorporation into many other programs. Because it calculates great-circle bearing and distance for the shortest path along with the distance in between, it should be a great asset for navigational calculations, especially when the TRS-80 goes portable or maritime moble.

However you use it, the Hurricane program is bound to provide a global distance and direction computing capablity never before available in the home. Happy hurricane hunting!

BUGSY

Build a real Z-80 bug. It's you against the computer as you each try to assemble your Bugsy bug.

Your TRS-80 will roll the dice for you; just type 1 and press ENTER. Depending on what number you get, you start to assemble your bug. However, you must start with the body before you can add any other parts. The various parts are: 1 = body, 2 = neck, 3 = head, 4 = feeler (two needed), 5 = tail, and 6 = leg (six needed).

Whoever builds his bug first wins the game. Type 2 and press ENTER for a new game.

HORSE RACE

At the start of the program, you will see a list of eight horses with the name, number, and odds for each horse.

First, you will have to enter the total number of bettors playing the game. The program can handle up to 100 bettors, but such a large number of bets being entered would tend to slow down the flow of the game. We suggest you limit the number of bettors to 10 or fewer. Each bettor will be prompted by his number.

Each bettor is given $100 at the start and can bet any amount up to their total bankroll. The computer will keep track of all winnings or losses and display the results.

At the prompt from the computer, each bettor chooses which horse to bet on, whether a win, place, or show (type in 1, 2, or 3), and the amount of the bet. After all the bets have been entered, the race will start.

As the race progresses, you can cheer your horse on. The first three horses at the finish line will be labeled with win, place, or show. Unfortunately, it is also possible for your horse to break its leg. This can happen at random to any horse.

The program will automatically restart at the end of a race and inform everyone when they have all gone broke.

CASSETTE RECORDER MAINTENANCE

Often, when you have trouble loading a program, it's not the fault of the tape or your computer system. It may be a problem with your cassette recorder. The staff at Instant Software use a large variety of cassette recorders eight hours a day, five days a week. To insure that the recorders will keep up with the demands of our work load, they are subjected to a rigorous maintenance routine.

As you run a tape in any recorder, a particle of oxide may flake off the tape, or a bit of dust may settle from the air. These bits of debris may adhere to the play/record head, causing variations in the volume level and degrading the performance of your recorder.

To keep your recorder in top condition, clean the recorder heads after every 15-20 loads or saves. Use denatured alcohol (available at any drugstore) and cotton-tipped swabs. Lightly dampen a swab and gently stroke the erase head, the record/play head, and the pinch roller. This will remove accumulated tape oxide and dust. You can also use a soft brush or vacuum cleaner to remove dust from the tape compartment.

Every time you press the record or play button, you put a small amount of stress on the play/record head. Eventually the head will be pushed out of alignment. This is one of the reasons why a program recorded when you first got your system will not load several months later or won't load on another system.

The cure is to have your recorder aligned by a qualified technician, or if you have the know-how, to align it yourself.

The technicians at Instant Software recommend using an industrial standard alignment tape (they use a Panasonic tape, part No. QZZCFM). This tape allows them to test for playback frequency response, playback level, and the head azimuth adjustment. The most critical aspect, especially for PETs, is the azimuth adjustment.

To run a test on your recorder, connect an oscilloscope to the earphone jack, insert the alignment tape into the recorder, push the play button, and adjust the head for the best waveform on the oscilloscope. If you lack test instruments, adjust the head for the loudest sound and best high frequency response without changing the recorder's volume setting.

Remember, your recorder is a critical link in your computer system. For the best performance, give it the best care.

- **HEX PAWN**
  SHUTTLE CRAFT DOCKING
  SPACE CHASE
  SEA BATTLE

This four-game package is sure to provide hours of fun for the whole family.

Hex Pawn: Turn your TRS-80 into a model of artificial intelligence by playing a simple game.

Shuttle Craft Docking: Land your shuttle craft on the starship — even through varying gravity fields!

Space Chase: Seek out and destroy the enemy delta that's hidden in the star field.

Sea Battle: You must find and destroy the enemy fleet.

This package requires a TRS-80 Level I 16K.

Order No. 0041R S7.95

● DOODLES AND DISPLAYS I

Here's a mixed bag of programs that's sure to entertain:

Doodle Pad: Draw pictures and save them on cassette tapes.

Symmetrics: Turn your TRS-80 into a kaleido-scope.

Video Display: Follow the bouncing cursor as your TRS-80 draws its own pictures.

Math Curves: Bring those Geometry lessons to life as the computer draws six different geo-metrical curves.

Rug Patterns: A never ending stream of sym-metrical patterns that's sure to spark your imagi-nation.

All you'll need is a 16K Level I TRS-80.

Order No. 0030R $7.95

● DOODLES AND DISPLAYS II

Wait until your children get a hold of this package:

Doodle Pad: Draw pictures and save them on cassette tapes.

Symmetrics: An electric kaleidoscope that changes from black to white and back again. It's almost hypnotic!

Drawing: Like Doodle Pad, but for the serious artist. Over 40 user commands!

Random Pattern Display: The computer does the drawing, but those with itchy fingers can tamper.

Math Curves: Bring those Geometry lessons to life. Six different geometrical curves on the screen of your TRS-80.

Rug Patterns: Yes, it does design rug patterns and, with a choice of user or computer control, it can do a whole lot more.

For the Level II 16K TRS-80.

Order No. 0042R $7.95

• SANTA PARAVIA
AND FIUMACCIO

Become the ruler of a medieval city-state as you struggle to create a kingdom. Up to six players can compete to see who will become the King or Queen first. This program requires a 16K TRS-80 Level I & II.

Order No. 0043R $7.95

• SPACE TREK III

Let yourself go to the far ends of the solar system — and beyond. This package includes:

Stellar Wars: Shoot down the Tie fighters and destroy the Death Star.

Planetary Lander: Land your spacecraft and plant your flag across the solar system.

These one player games require a TRS-80 Level I 4K.

Order No. 0031R $7.95

● FUN PACKAGE I

Why call it "Fun Package?" Judge for yourself! This entertaining package includes:

Rocket Pilot: Flying it is easy — it's the landing that's tough!

Paper, Rock, Scissors: It's the time-honored game just as you remember it, played against your TRS-80.

Hex I: Just when you master this puzzle game, the computer will increase the difficulty.

Missile Attack: Use your missiles to protect your city from jet attack.

Requires a Level I 16K TRS-80.

Order No. 0037R $7.95

PROGRAMS FOR YOUR TRS-80

Look for these fine programs at a computer store near you and save time and money. Or, if you'd prefer, you can use the handy order form on the next page. Or call toll-free 1-800-258-5473, and have your credit card ready.

☐ **HEX PAWN** (4K Level 1-16K Level I)
Hex Pawn; Shuttle Craft Docking;
Sea Battle; Space Chase
Order no. 0041R . . . . S 7.95

☐ **DOODLES AND DISPLAYS II** (4K Level II)
Doodle Pad; Math Curves; Random
Patterns Display; Symmetrics;
Drawing; Rug Patterns
Order no. 0042R . . . . S 7.95

☐ **SANTA PARAVIA AND FIUMACCIO**
(16K Level I Level II)
Order no. 0043R . . . . :. S 7.95

☐ **BOWLING LEAGUE STATISTICS**
SYSTEM (16K Level II)
Bowling Records-Startup
Bowling Records-Weekly
Order no. 0056R $24.95

☐ **BUSINESS PACKAGE III** (4K Level I)
Inventory; Discount and Commission
Percentages
Order no. 0061R . . . . S 7.95

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☐ **BUSINESS PACKAGE I** (4K Level I)
Order no. 0013R $29.95

☐ **PERSONAL FINANCE** (4K Level I)
Financial Income-Outgo; Checkbook
Order no. 0027R . . . . $ 7.95

☐ **RAMROM PATROL** (4K Level II-16K Level II)
Ramrom Patrol; Tie Fighter; Klingon Capture
Order no. 0028R . . . . $ 7.95

☐ **DOODLES AND DISPLAYS I** (4K Level I)
Doodle Pad; Symmetrics; Video Display;
Math Curves; Rug Patterns
Order no. 0030R . . . . $ 7.95

☐ **SPACE TREK III** (4K Level I)
Stellar Wars; Planetary Lander
Order no. 0031R . . . . $ 7.95

☐ **FUN PACKAGE I** (4K Level I-16K Level I)
Rocket Pilot; Hex I; Missile Attack;
Paper-Rock-Scissors
Order no. 0037R . . . . $ 7.95

☐ One-Year Subscription to Kilobaud MICROCOMPUTING ($18)
☐ One-Year Subscription to 80-MICROCOMPUTING ($15)

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☐ Also filled out is my program order blank. Enclosed is $ _____ for the
programs marked on reverse side plus $1.00 handling fee.

MAIL TO: MICROCOMPUTING, PETERBOROUGH NH 03458

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SOFTWARE OPPORTUNITIES

Anyone interested in writing software for fun and profit should send for our instruction sheet: "Dear Programmer." This describes, step by step, the process used by Instant Software for producing these programs. In addition to being able to make rather remarkable money as an author of a program, there are also opportunities to work on a freelance basis (at home) evaluating programs or converting them from one microcomputer system to another.

If you are thinking in terms of distributing your own programs, you can do worse than find out the benefits of having Instant Software do this job for you. Write for: "Selling Your Software The Easy Way."

Instant Software is looking for programs to publish and distribute — business programs, games, home programs, educational programs, scientific programs, etc. For more information please write to Instant Software, Peterborough NH 03458.