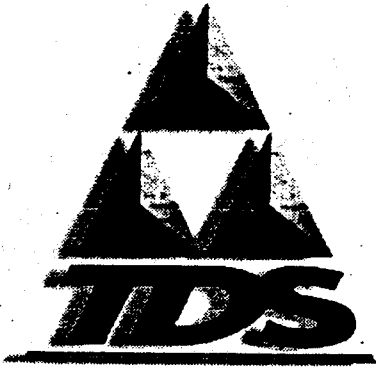


TRIPOD DATA SYSTEMS



Getting Started Video Workbook

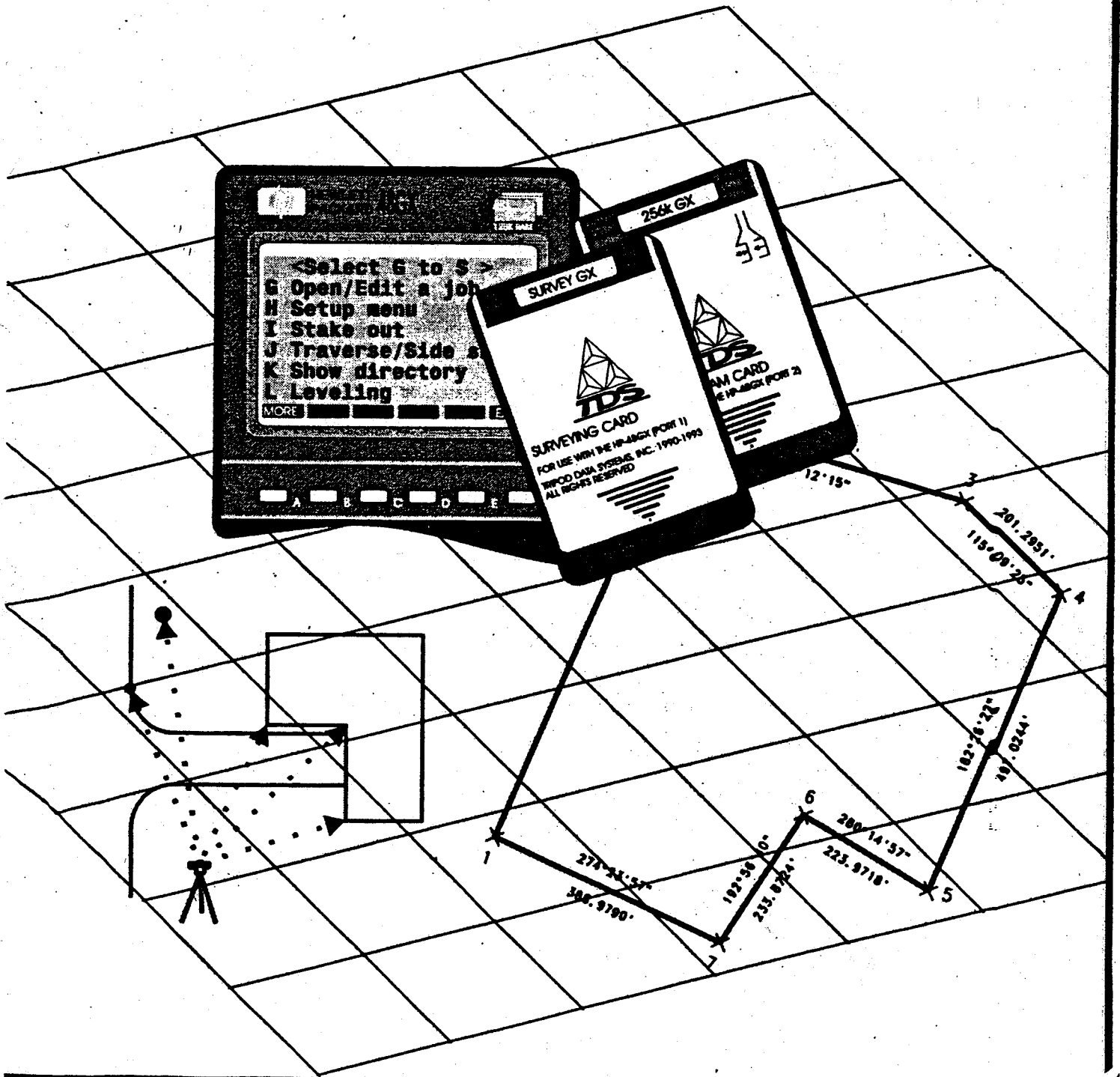




TABLE OF CONTENTS

	Time	Page
INTRODUCTION	0:00	2
SECTION 1	4:00	3
GENERAL SYSTEMS, INSTALLATION AND SETUP	4:00	3
GENERAL SYSTEMS	4:00	3
CLEARING THE CALCULATOR	5:00	4
INSTALLATION OF THE PROGRAM	6:00	5
THE MENU AND SCREEN INTERFACE	8:20	6
BASIC FILES	14:30	7
SETUP MENU / OPERATING MODES	19:00	8
SECTION 2	21:35	9
TRAVERSE DEMONSTRATION	21:35	9
SETTING THE BACKSIGHT	22:20	9
TRAVERSE DEMONSTRATION	26:55	10
SECTION 3	32:08	11
BASIC FIELDWORK	32:08	11
TRAVERSE / SIDESHOTS	32:15	11
POINT STAKING	49:00	12
SECTION 4	1:01:20	13
DOWNLOADING AND PC SOLUTIONS	1:01:20	13



Introduction

Notes

Time:00:00

Welcome to Tripod Data Systems' first training video. The purpose of the video, and this workbook is to provide our customers a basic introduction of important concepts when first starting to use TDS products. The Introduction to Data Collectors video will cover fundamental tasks and concepts that are necessary to effectively collect accurate and useful field data.

The topics the video will cover are as follows:

- General systems, installation, and setups
- Traverse and Sideshot activities
- Basic Fieldwork (Interfacing with the Total Station)
- Downloading and PC solutions

Video tape time counters are provided if you desire to skip sections or go back and review sections.

The TDS Survey Card and a HP-48GX handheld calculator will be used as the example data collector in this video. The major difference between the Survey Card and our other data collectors is the installation process. In the workbook, you will find shaded boxes that provide information on any substantial differences between the data collector models and the procedure being discussed on the tape and in the workbook as well as additional important items.

Please use this workbook to take notes and as a reference when working the examples on your own data collector.

We hope you find this video and workbook useful and informative.

Section 1 General Systems, Installation and Setups

Notes

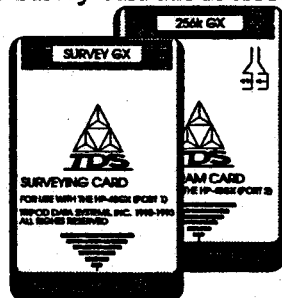
Time: 4:00

In this section we will cover basic system concepts such as clearing the calculator before use and launching the software.

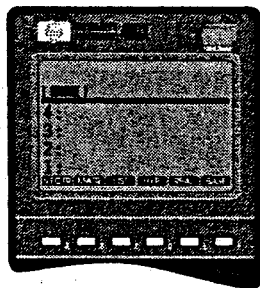
General Systems

Time: 4:00

The TDS Survey Card and 256K RAM Card



There are two cards that are part of the Survey Card system. The first is the program card. It is a 256K ROM (Read Only Memory) card and is used to store the program. The second is a RAM (Random Access Memory) card that is used to store job data and information. For the Survey program to work, both cards must be used.



The HP 48GX Home screen

Note:

The System 95 program only requires one 512K ROM card for the program. The data is stored on the internal drive of the HP 95/100/200.

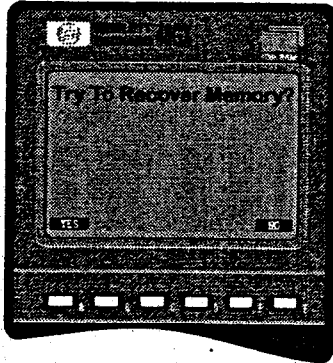
The Husky FS/2 requires no cards. The program and data are stored in the internal memory of the FS/2.

Clearing the Calculator

Time: 5:00

Notes

With the calculator on, press the **ON**, **A**, and **F** keys at the same time then release. The calculator will beep and display the message "TRY TO RECOVER MEMORY?". Press the **F** softkey under the word **NO**.



The calculator will then display the message "MEMORY CLEAR" above the home screen. Next, press the **ON** and the **Space (SPC)** keys at the same time then release. The calculator will beep and then turn off.

The calculator is now clear and ready for installation of the program.

Note:

The HP 95/100/200 and the Husky FS/2 require no special memory clear before use.

Installation of the Program

Notes

Time: 6:00

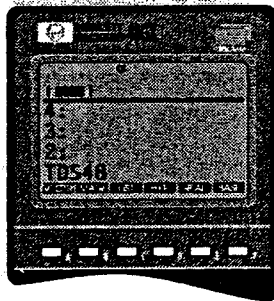
With the calculator off, insert the Survey Card (ROM Program Card) into port number two of the HP-48GX. Port number two is the one closest to you as you look at the back of the calculator. Refer to the diagram on the back of the calculator. Turn the calculator on by pressing the **ON** button. Press the **alpha [•]** key twice to lock the calculator into the alpha mode and type **TDS48**, then press **ENTER**.

Turn the Calculator **OFF**, then remove the Survey Card from port two and insert it into port one. Insert the RAM card into port two.

Note

When the calculator is turned back on it will display a message about "Invalid Card Data" if the Ram Card is new or has just had the batteries replaced. This is normal; answer yes to the next screen that asks "Wish to Erase All Data in Port 2."

Turn the calculator back **ON** and press the **alpha** key twice to lock the calculator in alpha mode. Type **TDS48** and press **ENTER**. The screen will display a message about TDS and the copyrights



as well as information about measuring units. Then the program will display the main menu for the program.

Caution:

Insure that both the cards are firmly seated in their respective slots.

Note:

To install the System 95 and the FS/2 software, refer to your users manual. Don't worry, the procedure is similar to the Survey Card installation and is quite easy to do

The Menu and Screen Interface

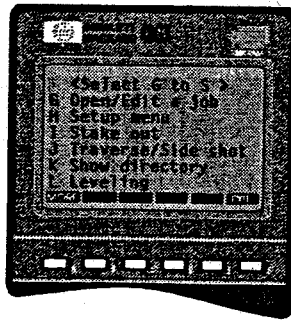
Notes

Time: 8:20

TDS uses both Menus and Screens to help users navigate through the program.

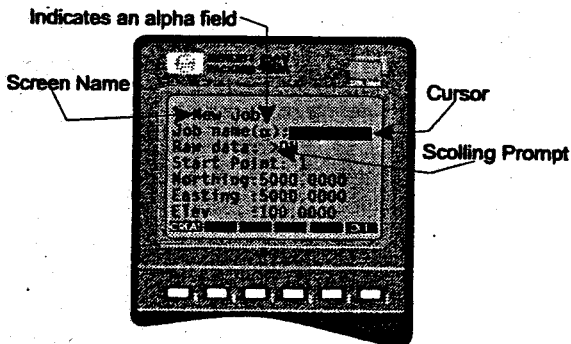
Menus:

Menus are lists of functions or function groups. They are similar to chapters in a book. Chapters list the main topic for an area, and within chapters there can be additional sub-chapters.



Screens:

Screens are areas where the user inputs data and generates solutions to problems. Screens are where all the work gets done.



There can also be **softkeys** at the bottom of the screen that provide additional options or tell the program to complete some action, like solve the current problem.

The menu system can be bypassed using the overlay and fast keys. Press the purple left shift key and then the key for the function you want to go to. Watch the video for a demonstration.

Note:

A job must be open for most of the fast keys to work. If the message "No Job Open" appears, open or create a job and then the fast key will work.



Basic Files

Notes

Time: 14:30

Raw Data Files (.RW5)

Raw data is all the information about the job you are doing; angles turned, zenith angles, slope distances occupy points etc. It is your electronic fieldbook. With this information you can see how the data was collected in the exact order it was collected. Raw data is NOT required to be collected when a survey is being done; however, TDS strongly recommends that you do store the raw data for future use. Below is an example of what a raw data file looks like and the data that is stored there.

```

IB,NMSMITH_FW,DT09-14-1992,TM16:30:58
MO,ADO,UNO,SF1.000000,ECO,E00.0000
-BEG
SP,PN1,N 5000.000000,E 5000.000000,EL100.000000,--BOUNDARY
JC,OP1,N 5000.0000,E 5000.0000,EL100.000,--BOUNDARY
BK,OP1,BP0,BS276.2315,BC0.0000
LS,HI5.32,HR6.00

    ,FP2,AR86.5412,ZE87.2858,SD30.2900,--DRIVE east
-BEG
SS,OP1,FP3,AR86.5412,ZE89.3016,SD148.6900,--FENCE west
SS,OP1,FP4,AR123.011200,ZE88.363800,SD150.180000,--TOPO
SS,OP1,FP5,AR144.210300,ZE87.563400,SD143.470000,--TREE
-C3
SS,OP1,FP6,AR162.1520,ZE87.2212,SD118.6300,--DRIVE east
SS,OP1,FP7,AR161.4742,ZE87.3751,SD154.1400,--DRIVE west
SS,OP1,FP8,AR149.2453,ZE88.0300,SD199.2600,--DRIVE west
-BEG
SS,OP1,FP9,AR160.471800,ZE88.024200,SD204.820000,--HOUSE
SS,OP1,FP10,AR142.190200,ZE88.081800,SD214.700000,--DRIVE
FR,OP1,FP13,AR86.5412,ZE89.4050,SD711.420,--BOUNDARY
LS,HI5.43,HR6.00
SS,OP13,FP14,AR314.245700,ZE88.585900,SD111.150000,--TOPO

```

Notes

Coordinate Files (.CR5)

The coordinate file is the basic file that TDS uses. It is created whenever a job is opened and stores all the coordinate data. Coordinate information is generated in real time; in other words, when a shot is taken, the raw data is passed to the calculator and is immediately reduced to coordinates and stored with a point number and an optional description. An example of a coordinate file is provided below.

Point	Northing	Easting	Elevation	Description
1	5000.000000	5000.000000	100.000000	BOUNDRY
2	5030.210873	5001.737099	100.650327	DRIVE
3	5148.439260	5008.535127	100.606015	FENCE
4	5116.002531	5095.310986	102.961565	TOPO
5	5070.082778	5125.082055	104.470227	TREE
6	5023.336090	5116.184648	104.763461	DRIVE
7	5031.540122	5150.744022	105.691836	DRIVE
8	5081.626917	5181.646970	106.100290	DRIVE

Descriptor file (descript.txt)

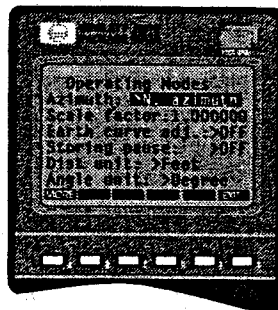
This file is used to expand abbreviated descriptors into a longer version to store with the point. It saves typing in extra characters.

```
1 START
EPR EDGE OF PVMNT RT
EPL EDGE OF PVMNT LT
UP1 UTILITY POLE 1
```

Setup Menu / Operating Modes

Time: 19:00

There are some basic setups that should be looked at. The default values used in these fields will work for the vast majority of surveys in the US. However, it is always a good practice to check these settings before starting a survey to insure that they are correct.



Section 2 Traverse Demonstration

Notes

Time: 21:35

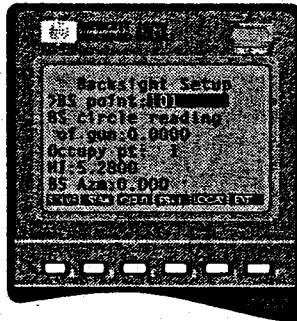
In this section, we will cover a very basic traverse using the manual mode in the data collector. The first step is setting the backsight and then the actual traverse can be entered

Setting the Backsight

Time: 22:20

It is important to set up the backsight in the data collector properly so that data can be correctly recorded. Use the backsight screen, accessed from any screen that requires a backsight, to do this.

The backsight screen provides a method for you to define your backsight information in the data collector. In the following section, we provide a simple, manually entered azimuth traverse as a demonstration.



While a backsight orientation is not used to define an absolute direction such as a bearing or azimuth in a manually entered traverse, the TDS program does check to see that some backsight value has been entered in the backsight screen. When manually entering an angle right, angle left, deflection right or deflection left an original basis of bearing must be entered using the backsight screen. When collecting data electronically, a basis of bearing must be defined using the backsight screen in order to calculate the angle right value and its direction based on the horizontal angle received from the total station.

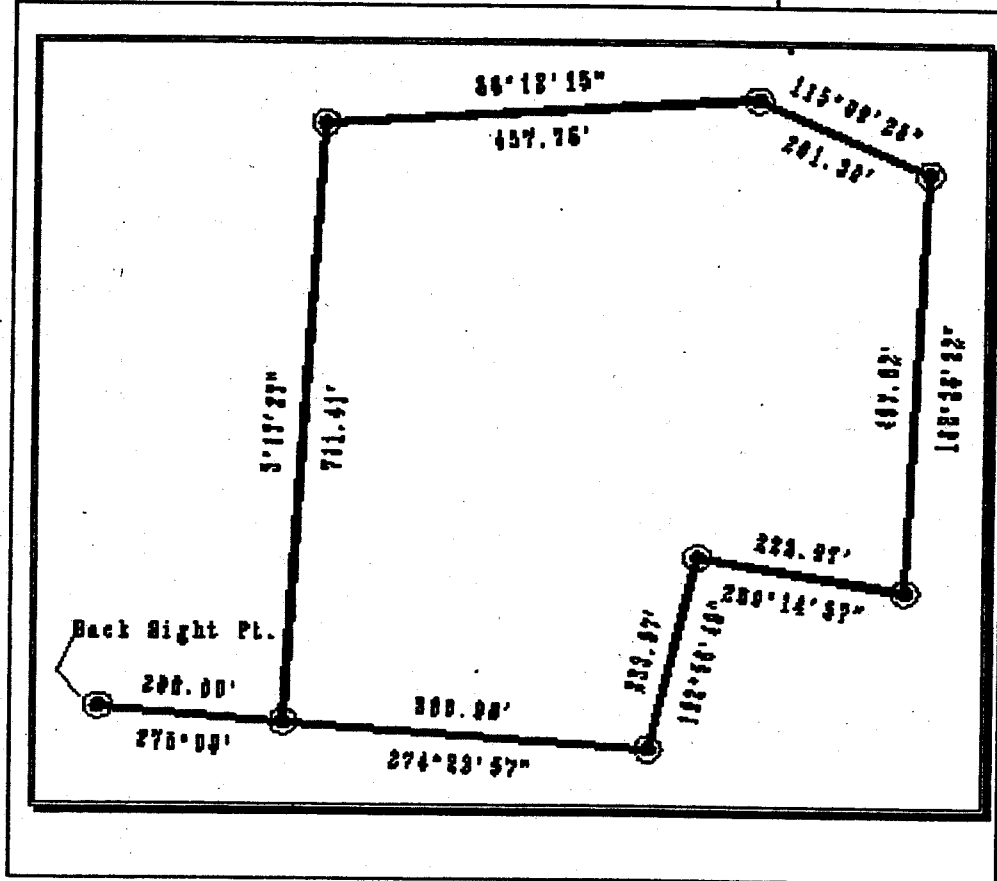


Traverse Demonstration

Time: 26:55

Notes

In this demonstration, we will be using Azimuth, Change in Elevation and Horizontal Distance to show additional options that are available in the manual mode while using our data collectors. When we go outside to use the total station, Angle Right, Zenith Angle and Slope Distance will be used.





Section 3 Basic Fieldwork

Notes

Time: 32:08

In this section we will demonstrate field data collection using an Electronic Total Station in conjunction with TDS data collectors.

Traverse / Sideshots

Time: 32:15

Caution:

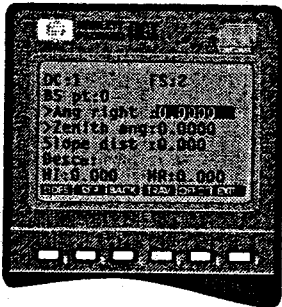
Set up for each Total Station is different. Refer to appendix B of your manual to setup your gun.

Note:

There are three possible problems if there is no communication between the data collector and the gun:

- 1: Low Batteries in the data collector or gun
- 2: Cable connection problems
- 3: Communication parameters don't match

shot / Topo / Traverse



Key Points:

- 1) Insure that your backsight is properly set in the data collector after occupying a new position.
- 2) Properly set the circle on the gun and make sure it matches the circle field in the data collector (usually both are set to zero when centered on the backsight).

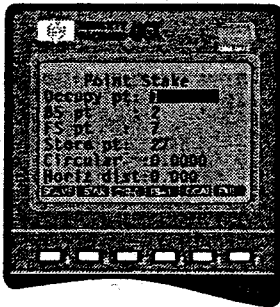
Point Staking

Notes

Time: 49:00

Use point staking to locate points and store as-built coordinates.

To use this function, you must supply the occupy point, backsight point, foresight point, and store point. The store point is the point number you wish to use to store the as-built coordinate.



Press **SOLVE** to see the horizontal distance and circle to the foresight point. Then press **STAK**, (stake) to shoot the point. When the rod is positioned close enough to the actual point, press **STORE** to record the as-built coordinates.



Section 4
Downloading and PC Solutions

Notes

Time: 1:01:20

When using TFR to download your data from the data collector to the PC, there are some things that need special attention.

1) The batteries in the data collector must be relatively fresh. If the transfer starts, but stops part way through, your batteries do not have sufficient power. Replace them and try again.

2) The cables must be in good shape and connected properly. Insure that the comm port selected in the TFR program matches the port the cable is connected to.

3) The baud rate and the parity that are set in the data collector must match the baud rate and parity set in the TFR program.

At the end of the video, a brief demonstration of a few of the possibilities available in Easy Survey Plus are demonstrated. If you would like to see more on Easy Survey Plus, please call us and we can arrange to send a free demonstration copy of Easy Survey Plus to you. The demo is fully functional and will run for about 30 days before it expires. The demo provides an excellent opportunity to fully evaluate the software before making a purchasing decision.

This concludes the TDS Introduction to Data Collectors Video Workbook. We hope that the workbook and the video have been helpful.