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Explosive Inventory Program

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Abstract

This report describes the computer program used at the Tonopah Test Range to maintain the explosive inventory. The program, which uses dBASE III or dBASE III Plus and runs on an IBM PC or compatible, has the capabilities to update (add or subtract) items, edit or delete, append, and generate various reports.

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Explosive Inventory Program

Introduction

The Explosive Inventory program was designed to perform the following functions:

- Update the inventory as items are received and expended. The program can perform calculations of addition, subtraction, and multiplication.
- Edit records.
- Delete records.
- Add records.
- Generate various reports.
- Create labels for inventory items.
- Calculate the total number of items, total item weight, total explosive weight per bunker, and total explosive weight of all bunkers.

Program Description

The Explosive Inventory program was developed to keep an accurate inventory of all explosives stored

at the Tonopah Test Range (TTR). The program can calculate additions and subtractions of items used and received. It can also calculate total item weight and total bunker explosive weight.

With this program, one can edit, delete, and create new records by using the Append program whenever new items are received. Four different types of reports can be generated by this program: (1) the Main Report, for a broad overview; (2) the Owner Report, which lists who owns what items; (3) the Weight Report, which gives total item weight and total explosive storage bunker weight; and (4) the Year-End Report, which compares quantity of explosives in the initial inventory against quantity at year's end, as well as weight totals.

In addition, the program is capable of generating adhesive labels used to identify items.

Building the Database

The first item that must be created is the explosive database structure. To do this, refer to the dBASE III or III Plus manual. Table 1 lists the fields that are needed for the program to work correctly.

Table 1. Fields Needed to Create Database Structure

Field	Name	Type	Width	Dec
1	ITEM	Character	20	
2	LOT_NUMBER	Character	20	
3	LOCATION	Character	8	
4	BIN	Character	3	
5	LAST_INVTY	Date	8	
6	INVTY_QUAN	Numeric	5	
7	QUAN_USED	Numeric	5	
8	CURNT_QUAN	Numeric	5	
9	UNITS	Character	2	
10	UNIT_WT	Numeric	8	3
11	CURNT_WT	Numeric	8	3
12	OWNER	Character	10	
13	COMMENTS	Character	20	
14	HAZ_CLASS	Character	1	
15	COMP_GROUP	Character	1	
** Total **			129	

The field names are abbreviated so they can fit into their proper spaces. Following is a description of each field.

1. ITEM - Item name
2. LOT_NUMBER - Lot number of the item
3. LOCATION - Where the item is located
4. BIN - A further breakdown of where an item is located
5. LAST_INVTY - Last inventory date
6. INVTY_QUAN - Total quantity at time of the inventory
7. QUAN_USED - Total number of items used since the last inventory
8. CURNT_QUAN - Current quantity of the items since the last inventory
9. UNITS - Brief description (e.g., bx for box, cn for can, ea for each)
10. UNIT_WT - Item explosive weight
11. CURNT_WT - That item's total explosive weight
12. OWNER - The person or organization responsible for the item
13. COMMENTS - Any other additional information
14. HAZ_CLASS - DOE hazard classification
15. COMP_GROUP - DOE storage compatibility group

Starting the Program

To start the program, one must be in dBASE III or III Plus and at the dot prompt. At the dot prompt, type in DO INVENT. This command starts the program and brings up the first screen (see Figure 1), the user access screen. Here, type in a predetermined access code in order to proceed with the program. This screen can be turned off by editing the INVENT program. The access code is not visible on the computer screen.

After typing in the correct access code the program will continue on to the first menu screen (Figure 2). This shows the date and time at the top of the screen along with a menu of six choices.

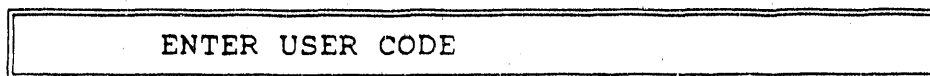


Figure 1. User Access Screen

00/00/00

00:00:00

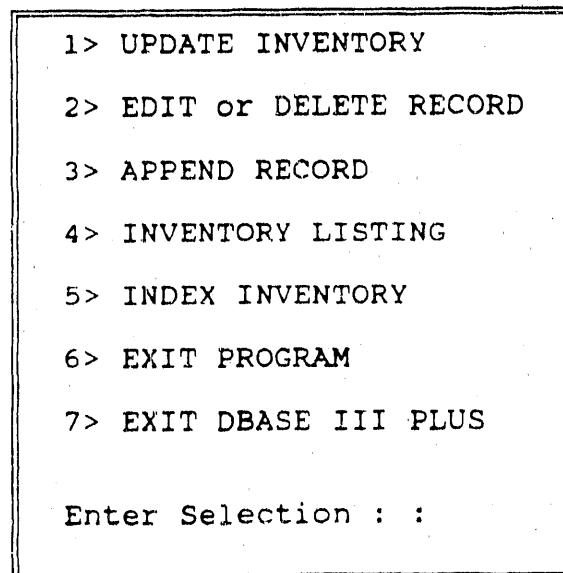


Figure 2. Main Menu

Update Inventory Program

When selecting the first item on the Main Menu you are entering the UPDATE INVENTORY program. This program performs all the calculations needed to keep the inventory current. The program can add items into the inventory, it can take items out, and it can change the inventory date. When adding to or subtracting from this program it will automatically change the current weight and current quantity. The first screen will state:

UPDATE MENU

Enter item name

At this point you have two choices. The first is to press the <enter key>, which will then state:

UPDATE MENU

No entry!! Is this correct? (Y or N)

If you type *Yes*, the program will search for a record with a blank item field. If no blank item fields are found the next screen will state:

No item found

Press any key to continue

Pressing any key will take you back to the main program menu. If you type *No*, this also will take you back to the main program menu. The second choice is to enter an item name. This could be either a single letter or enough information to make your entry unique. It is to the user's advantage to use as much information as possible. For example, by typing the letter *P* you will get the first record that contains that letter. If there are multiple entries containing the letter *P* press the PgDn key to get to the record you need. After you enter the item name the program will state:

Your entry was — (example)

Is this entry correct? (Y or N)

A *Yes* answer will take you to the record. If the record cannot be found, the program states:

No item found

Press any key to continue

Pressing any key takes you back to the main program menu. A *No* answer also takes you back to the main program menu. After you have entered the correct item name, the program will search for that particular record. Once the record is found the screen shown in Figure 3 will appear. There are three different fields one can change in this program:

QUANTITY REMOVED
QUANTITY RECEIVED
DATE RECEIVED

The cursor will be flashing at the QUANTITY REMOVED area. Entering an amount here and pushing the <enter key> will change the TOTAL QUANTITY USED, the CURRENT QUANTITY, and the CURRENT WEIGHT. If nothing was removed simply press the Enter key. This will take you to the next field, QUANTITY RECEIVED. Entering an amount here will change the INVENTORY QUANTITY, CURRENT QUANTITY, and CURRENT WEIGHT. If nothing was received press the <enter key> and this will take you to the last area, the DATE RECEIVED. Entering a date will change the LAST INVENTORY DATE to the new date. If you don't wish to change the date, press the <enter key>. This will then add, subtract, or in some way alter the fields in which you have entered changes. If the item you selected has more than one entry, use the PgUp and PgDn keys to get to the proper record. When you are at the end or at the beginning of the file, a message will flash either END OF FILE or BEGINNING OF FILE to advise you of your status. Once a change has been made, the QUIT option becomes available (Figure 3). Pressing the *Q* key will take you back to the main program menu.

UPDATE MENU		EXPLOSIVE INVENTORY	
QUANTITY REMOVED	QUANTITY RECEIVED	DATE RECEIVED 04/03/90	
ITEM: PROP M203A1 P		LOT NUMBER: IND 87G-070795	
LAST INVENTORY DATE: 04/03/90		LOCATION: 9-56	BIN:
INVENTORY QUANTITY	10	UNIT WEIGHT	31.500
TOTAL QUANTITY USED	0		
CURRENT QUANTITY	10 EA	CURRENT WEIGHT	315.000
OWNER: SALLY		COMMENTS: W-82 PROOF	
HAZARD CLASS: 3		COMPATIBILITY GROUP: C	
NEXT: PgDn		LAST: PgUp	

Figure 3. Update Menu

Edit or Delete Record Program

From the main program menu, one can select the EDIT or DELETE RECORD program. This program can edit any part of a record or the entire record. The program is also used to delete a record. When deleting a record, you are actually putting a flag on that record. This give you the option to delete it completely or to merely leave the flag in place.

To use this program at the main menu, select the EDIT or DELETE RECORD program.

NOTE: This program will *not* do calculations; you must be in the UPDATE program to do any calculations. An exception to this is the APPEND program, which is set up to do the original calculations for total item weight. After selecting the EDIT or DELETE RECORD program, the first screen states:

EDIT or DELETE
MENU

Enter item name

You now have two choices. The first is to press the <enter key>, which will then state:

EDIT or DELETE
MENU

No entry!! Is this correct? (Y or N)

If you type *Yes*, the program will search for a record with a blank item field. If no blank item fields are found, the next screen will state:

No item found

Press any key to continue

Pressing any key will take you back to the main program menu. If you type *No*, this will also take you back to the main program menu.

Your second choice is to enter an item name. This can be either a single letter or enough information to make your entry unique. For example, if you type the letter *P*, you would get the first record containing that letter. If there are multiple entries containing the

letter *P*, use the PgDn key to get to the record you need. After you enter the item name, the program states:

Your entry was — (example)

Is this entry correct? (Y or N)

A *Yes* answer will take you to that record, unless the record cannot be found. Then the program states:

No item found

Press any key to continue

Pressing any key will take you back to the main program. A *No* answer will also take you back to the main program menu.

Once you have entered an item name and it is correct, the program will search for that particular record. When the record is found the screen shown in Figure 4 will appear. You can change any field within this record; however, it is *not* advisable to change any of the quantities or the weight information. If you do change a quantity or weight, you must run the UPDATE INVENTORY program and toggle through the record that you have changed to do the corrected calculations.

To get to the field you wish to change, press the <enter key>. This moves the cursor from one field to the next. To back up or erase an entry, press the back space key and retype.

At the bottom of the screen is a list of commands that can be used and the proper keys to execute the commands (Figure 5).

EDIT or DELETE MENU	EXPLOSIVE INVENTORY	Record Number	10
ITEM: PROP M203A1 P		LOT NUMBER: IND 87G-070795	
LAST INVENTORY DATE: 04/03/90		LOCATION: 9-56	BIN:
INVENTORY QUANTITY	10	UNIT WEIGHT	31.500
TOTAL QUANTITY USED	0		
CURRENT QUANTITY	10 EA	CURRENT WEIGHT	315.000
OWNER: SALLY		COMMENTS: W-82 PROOF	
HAZARD CLASS: 3		COMPATIBILITY GROUP: C	
EXIT/SAVE: ^End ABORT: Esc	NEXT: Page Down LAST: Page Up	DELETE RECORD: ^U DELETE FIELD: ^Y	

Figure 4. Edit or Delete Menu

EXIT/SAVE: ^End ABORT: Esc	NEXT: Page Down LAST: Page Up	DELETE RECORD: ^U DELETE FIELD: ^Y
-------------------------------	----------------------------------	---------------------------------------

Figure 5. Commands Screen

The EXIT/SAVE command exits the EDIT or DELETE RECORD program and saves the changes that were made. To execute this command, press both the Ctrl key and the End key simultaneously.

The ABORT command cancels all changes made on the current record. To execute the ABORT command, press the Esc key.

The NEXT and LAST commands are used to move to the next record or to the previous record. To use this function, press the PgUp for previous record and PgDn for next record.

The DELETE RECORD command is used if you wish to flag a particular record to be deleted from the inventory. To execute the DELETE command, press the Ctrl and U keys simultaneously. This will flag the current record. If you flagged the wrong record, press the Ctrl and U keys once more to remove the flag on the record. The status bar at the very bottom of the screen indicates whether a record is flagged. DEL will appear at the right-hand side of the status bar if the current record is flagged.

The DELETE FIELD command is used to erase a complete field. To execute the DELETE FIELD command, press the Ctrl and Y keys simultaneously.

When you exit the program by either the ABORT command or the EXIT/SAVE command, the next screen states:

Do you want to erase from inventory records marked for deletion?

(Y or N) ::

A Yes response will erase all records flagged for deletion. The next screen will state:

!!! Do not interrupt !!!

!!! System is packing !!!

The word *packing* is a term used by dBASE. A No answer will maintain all records, and flag those marked for deletion. This will *not* erase any records that are flagged.

Append Record Program

This program is used to add new records to the inventory. The APPEND RECORD program will temporarily start a new database file, called HE. When the file is finished to your satisfaction it will take the database file and add your new files to the main database, which is called EXPLOSIVE. When you start the APPEND RECORD program, the menu in Figure 6 will show up on your screen. All the data fields will be blank.

ADD NEW RECORD MENU	EXPLOSIVE INVENTORY
ITEM:	LOT NUMBER:
LAST INVENTORY DATE: / /	LOCATION: BIN:
INVENTORY QUANTITY	UNIT WEIGHT
TOTAL QUANTITY USED	
CURRENT QUANTITY	CURRENT WEIGHT
OWNER:	COMMENTS:
HAZARD CLASS:	COMPATIBILITY GROUP:

Figure 6. Add New Record Menu

To append (add) records, simply fill in the blanks. For fields that have no input data, press the <enter key> to go on to the next field. If you enter an item's unit weight it will automatically compute the total current weight of that item.

Three fields require an input: ITEM, LOCATION, and COMPATIBILITY GROUP.

If you leave the ITEM field blank, the screen will state:

No item entry, record will not be added !

Press any key to continue

Pressing any key the next screen will allow you to select one of three items and will look like this:

- 1 > **Edit this entry**
- 2 > **Next entry**
- 3 > **Quit**

Make Selection ::

At this point you can select 1 or 3; selecting 2 would be of no use. If you select 1, this will allow you to go back and add an item name or change any other field. If you select 3, this will take you back to the main program menu.

If you leave the LOCATION field blank the screen will look like this:

**Not a compatible location
Enter new location
Enter compatibility group**

With this screen you must input a location and a compatibility group letter.

If you leave the COMPATIBILITY GROUP field blank, the screen will look like this:

Not a valid compatibility group !

Enter valid compatibility group

In the compatibility group is a very important item that must be correct. This has a check and balance system. Once the program is set up to accommodate your needs, this will check that what you are storing

into a particular igloo is compatible with what is already stored. There are three different scenarios:

1. If you stored an item that is 100% compatible, the screen that you will see after it does all the checks is:

- 1 > **Edit this entry**
- 2 > **Next entry**
- 3 > **Quit**

Make selection ::

From this screen you may select 1 to edit any or all of the entry, 2 if you plan to add another item, or 3 if you are finished. This will take you back to the main program menu.

2. If it is 50% compatible—that is, compatible with what is already stored but maybe there is a better location available—the screen will show:

Is there a better location available? (Y or N)

A *Yes* response will prompt you for a new location. Type in new location and press Enter. It will recheck all the entries for discrepancies. A *No* response will bring back the screen:

- 1 > **Edit this entry**
- 2 > **Next entry**
- 3 > **Quit**

3. If it is *not* compatible at all, this will prompt a screen stating:

**Not a compatible location
Enter new location
Enter compatibility group**

Enter a new location and a compatibility group. Let the program check again to see if there are any problems. If everything is all right, the next screen will state:

- 1 > **Edit this entry**
- 2 > **Next entry**
- 3 > **Quit**

To exit this program select 3. This will take you back to the main program menu.

Inventory Listing Program

From the main menu, selecting the INVENTORY LISTING program will bring you to the next menu, which offers six options:

```

1> MAIN REPORT
2> OWNER REPORT
3> WEIGHT REPORT
4> ANNUAL REPORT
5> LABEL MAKER
6> EXIT

ENTER SELECTION :
    
```

The third selection, WEIGHT REPORT, will print out a report giving total explosive weight by item and per bunker (Figure 9).

The fourth selection, ANNUAL REPORT, gives the annual summary report (Figure 10).

LABEL MAKER, the fifth selection, enables the user to make labels for each item in the inventory. When selecting LABEL MAKER, the next screen you will see is a menu with two selections.

```

1> PRINT LABELS
2> EXIT

ENTER SELECTION : :
    
```

The first selection, MAIN REPORT, will print out an overview of the explosive inventory (Figure 7).

The second selection, OWNER REPORT, will print out a report showing what items belong to what owner (Figure 8).

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TONOPAH TEST RANGE
EXPLOSIVE
STORAGE INVENTORY

ITEM	LOT/PART NUMBER	BIN TOTAL UNITS	COMMENTS
** LOCATION 9-56			
PROP L10A1	BPD-1-77	16 EA	CHARGE 8 155
PROP M-119	IA-B-39740A	39 EA	155 WARMER
PROP M188A1	IND 85D-070344	7 EA	W-79
PROP M188A1	IND 85M-070548	6 EA	W-33 PROGRAM
PROP M188A1	IND 84B-070362	12 EA	W-33 PROGRAM
PROP M188A1	IND 90C-001S017	7 EA	SPECIAL MOD. +10%
PROP M188A1	IND 85J-070541	12 EA	W-33
** Subtotal **		99	
*** Total ***		99	

Figure 7. MAIN REPORT Printout

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TONOPAH TEST RANGE
EXPLOSIVE
STORAGE INVENTORY

ITEM	LOT/PART NUMBER	TOTAL COMMENTS UNITS	OWNER
** LOCATION 9-56			
PROP L10A1	BPD-1-77	16 CHARGE 8 155	SALLY
PROP M-119	IA-B-39740A	39 155 WARMER	SALLY
PROP M188A1	IND 85D-070344	7 W-79	COLLIER
PROP M188A1	IND 85M-070548	6 W-33 PROGRAM	ARDINO
PROP M188A1	IND 84B-070362	12 W-33 PROGRAM	ARDINO
PROP M188A1	IND 90C-001S017	7 SPECIAL MOD. +10%	SALLY
PROP M188A1	IND 85J-070541	12 W-33	ARDINO
** Subtotal **		99	
*** Total ***		99	

Figure 8. OWNER REPORT Printout

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TONOPAH TEST RANGE
EXPLOSIVE
STORAGE INVENTORY

ITEM	LOT/PART NUMBER	COMMENTS	TOTAL WEIGHT
** LOCATION 9-56			
PROP L10A1	BPD-1-77	CHARGE 8 155	480.000
PROP M-119	IA-B-39740A	155 WARMER	897.000
PROP M188A1	IND 85D-070344	W-79	364.000
PROP M188A1	IND 85M-070548	W-33 PROGRAM	312.000
PROP M188A1	IND 84B-070362	W-33 PROGRAM	624.000
PROP M188A1	IND 90C-001S017	SPECIAL MOD. +10%	312.900
** Subtotal **			2989.900
*** Total ***			2989.900

Figure 9. WEIGHT REPORT Printout

TONOPAH TEST RANGE EXPLOSIVE
STORAGE INVENTORY
ANNUAL REPORT

ITEM	LOT/PART NUMBER	LAST INVTY DATE	TOTAL AT INVTY	TOTAL USED	CURNT TOTAL	TOTAL WEIGHT OF ITEM
** LOCATION 9-56						
PROP L10A1	BPD-1-77	04/03/90	16	0	16	480.000
PROP M-119	IA-B-39740A	04/03/90	39	0	39	897.000
PROP M188A1	IND 85D-070344	04/03/90	15	8	7	364.000
PROP M188A1	IND 85M-070548	04/03/90	6	0	6	312.000
PROP M188A1	IND 84B-070362	04/03/90	12	0	12	624.000
PROP M188A1	IND 90C-001S017	04/12/90	12	5	7	312.900
** Subtotal **						2989.900
*** Total ***						2989.900

Figure 10. ANNUAL REPORT Printout

When you select the first item, PRINT LABELS, the next screen shows:



Do you want a printout of the inventory ?
Y or N ::

A Yes answer will give a printout showing the record number, item, lot number, and current quantity of the entire inventory. Figure 11 shows an example.

A No answer will take you to the next screen, which will ask for the record number of the item for which a label is to be printed. The record number can be found on the printout, but once you have a printout you don't need another unless you have made additions or deletions to the inventory. Enter the record number. The next screen will state:

Your entry was —

Is this entry correct? (Y or N)

A No response will take you back to the menu for this program; a Yes response will print out the record you chose. Press any key to continue. The next screen will state:



Enter number of labels to print

Enter the number of labels you need and press Return. The next screen will state:

Your entry was —

Is this entry correct? (Y or N)

A *No* answer will take you back to the main menu for this program. A *Yes* answer will print out the number of labels requested. Figure 12 gives an example of a few labels. Each label shows the item, the lot or serial number, any comments that might further describe the item, who owns the item, and the last date it was inventoried. After the labels have been printed the next screen will be the label menu. At this point you may print more labels or exit. Pressing the exit key will take you to the main program menu.

```

1> PRINT LABELS

2> EXIT

ENTER SELECTION : :

```

Record#	ITEM	LOT_NUMBER	CURNT_QUAN
1	PROP L10A1	BPD-1-77	16
2	PROP M-119	IA-B-39740A	39
3	PROP M188A1	IND 85D-070344	8
4	PROP M188A1	IND 85M-070548	6

Figure 11. Inventory Printout

```

PROP M203A1
IND 87G-070795
W-82 PROOF
SALLY
02/22/89

```

```

PROP M203A1
IND 87G-070795
W-82 PROOF
SALLY
02/22/89

```

```

PROP M203A1
IND 87G-070795
W-82 PROOF
SALLY
02/22/89

```

```

PROP M203A1
IND 87G-070795
W-82 PROOF
SALLY
02/22/89

```

```

PROP M203A1
IND 87G-070795
W-82 PROOF
SALLY
02/22/89

```

```

PROP M203A1
IND 87G-070795
W-82 PROOF
SALLY
02/22/89

```

Figure 12. Example of Labels

Index Inventory Program

The fifth selection on the main inventory menu, is INDEX INVENTORY. This will allow the program to sort all items into the correct order, first by location in numerical order and then by items in alphabetical order within each bunker. This is used before selecting reports that are to be generated.

Exit Program

This selection, when chosen, will take the user back to the dot prompt in dBASE.

Exit dBASE III Plus

The last selection on the main inventory menu will end your dBASE III session.

END

DATE FILMED

10 / 18 / 90

