Chapter 9
Truck Weighing (M455)

9.1 Introduction

Truck Weighing is an application for which the Model 455 is very well suited. This application takes into account the two most frequent situations: dumping and pick up.

In Truck **dumping**, the initial weight of the truck coming in (Truck In) is heavier than when the truck is leaving (Truck Out). In Truck **pick up,** the initial weight of the truck coming in (Truck In) is lighter than when the truck is leaving (Truck Out).

The Truck In/Out capability makes use of the **[ID]** key to permit entry of truck identification (ID) numbers. The IDs are stored within the system with the incoming weight of the truck. When the truck is on the way out, the In-Weight is compared to the Out-Weight. The instrument then considers the lower of the two weights to be the Tare Weight, the larger to be the Gross Weight, and the difference to be the Net Weight. Tare Weights may be permanently stored in the system to determine truck weights with a single weighment. One or more of the Custom Transmits may be sent, providing either a ticket documenting the amount of weight picked up and/or dropped off, or sending the data to a computer or remote display. This feature makes the instrument an ideal weight unit for dump site weighing, gravel pit weighing, and many other truck weighing applications.

This feature includes the ability to establish and store the tare weight of a vehicle, clear any or all stored weights or transmit the currently stored truck weights.

The Truck In/Out feature works in a relatively preset manner. It can be customized to some extent with its setup, and custom transmits.

9.2 Setup

Setup involves enabling the Truck In/Out Weighing feature and setting up the custom transmits.

Enabling Truck In/Out Weighing

To enable the Truck In/Out feature, parameter **P720** is set to the selection **"Truck"**. Parameter 721 sets the ID register storage size. A size of 1 is the default setting with a 49 character maximum size for ID storage (P21).

Transmission Setups

There are two separate events which may occur with the Truck In/Out feature. These are:

- Truck In
- Truck Out

The data transmissions sent by the 455 during the two "Truck In/Out" events are fully programmable and must be set appropriately in order for the correct results to be printed. Normally these transmissions are used to print tickets for the truck's driver.

All transmissions are accomplished through the use of the 2nd and 3rd Custom Transmits which are not part of the instrument's standard setup. These custom transmits are exclusively associated with the truck operation. The 2nd custom transmit is associated with the *weigh in event* and the 3rd custom transmit is associated with the *weigh out event*.

As each event occurs, the unit checks its setup to determine which transmission is to be sent.

Next, define on paper the desired appearance of the ticket for these events. After reviewing your data transmission needs, access the correct custom transmit table (Parameter P2000 for weigh in, Parameter P3000 for weigh out) to configure the transmission.

9.3 Registers Associated with the Truck Operations

Description	Parameter ID
12	**TrGrs** (Truck Gross Wt.)
13	**TrNet** (Truck Net Wt.)
14	**TrTar** (Truck Tare Wt.)
21	**Tr ID** (Truck ID #)
50	**TrTim** (Truck Time)

Table 9-1 Truck data registers

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The truck mode operation has specific registers associated with the gross, tare and net truck weights. There is also a string which holds alpha-numeric truck ID data. A Truck Time register is also available and used as the time-stamp of each stored tare weight. These registers can be added to the custom transmit setups and sent to a printer or a computer. Table 9-1 shows these registers.

9.4 Method of Operation

The following listing shows the modes of operation which are selectable when the **[ID]** key is pressed.

MENU ITEM	OPERATION
Weigh Out:	Key in ID# and press **[ENTER]** or press **[ENTER]** alone and you will be prompted to key in ID#. If ID# does not exist, ***IDnot Found*** will be displayed briefly, then return to the previously weight display. If found, custom transmit #2 will be sent out the comm port. If the ID# was a temporary database entry from the weigh-in menu, then that ID# will be deleted from the database. Return to previous weight display.
Weigh In:	Key in ID# and press **[ENTER]** or press **[ENTER]** alone and you will be prompted to key in ID#. If ID# does not exist, a *temporary* row will be created with this ID# and weight. Custom transmit #1 will be sent out the comm port. Return to previous weight display.
Auto Tare:	Key in ID# and press **[ENTER]** or press **[ENTER]** alone and you will be prompted to key in ID#. If ID# does not exist, a new *permanent* row will be created in the database. If ID#
does	exist, the existing ID# information will be overwritten with the new data. Return to
previous	weight display.
KeyIn Tare:	Key in ID# and press **[ENTER]** or press **[ENTER]** alone and you will be prompted to key in ID#. If ID# does not exist, a new *permanent* row will be created in the database. If ID#
does	exist, the existing ID# information will be overwritten with the new data. Return to
previous	weight display.
Print Tares:	Press **[ENTER]** to print stored tare weights in row/column format with header. Return to previous weight display.
Clear One:	Key in ID# and press **[ENTER]** or press **[ENTER]** alone and you will be prompted to key in ID#. If ID# is found, ***Sure? ???*** will prompt you to confirm your intention to delete that
ID#	from the database followed by **"Enter = Yes"**. Press **[ENTER]** to clear or press
any other	key to abort by pressing **[ENTER]**. Press any other key to abort. Briefly display
Done!	after deleting and return to previous weight display. If ID# is not found,
briefly display	***IDnot Found*** and return to previous weight display.
Clear All:	Press **[ENTER]** to delete all ID#'s from the database. ***Sure? ???*** will prompt you to
confirm	your intention to delete all data followed by **"Enter = Yes"**. Press **[ENTER]** to
clear or	press any other key to abort. Briefly display ***Done!*** after deleting and
return to previous	weight display.

Figure 9-1 Method of Operation

The first menu item as listed below will appear. Pressing the **[SELECT]** key will advance through the menu items. If the last menu item is displayed, pressing **[SELECT]** will "wrap" to the beginning of the menu. Once in the menu, press **[ID]** again to exit to the previous weight display.

9.5 Alpha-Numeric Truck ID's

The 455 numeric keypad allows for easy numeric truck ID entries. Alpha character entry is possible using the cursor keys. The **[A-Z]** key must be pressed to initiate an alpha entry. The **[◀]** and **[▶]** arrow keys allow for moving back and forth between the next or previous character entries. The **[▲]** and **[▼]** arrow keys allow for scrolling up and down through the ASCII character set.

9.6 Data Storage Structure

The ID#'s (P21) and stored tare weights (P14) or inbound truck weights will be stored as columns 1 and 2 in an EEPROM database structure. The 3rd column after the weight is an indication as to what type of weight has been stored (refer to the legend below). Parameter P50 will allow time&date as a 4th column, providing a "time-stamp" of each stored weight type.

A 2K EEPROM is used in the standard 455 to provide adequate storage of transaction rows. The ability to use an optional 8K EEPROM provides extended data storage capability.

A size of 1 is the default setting with a 49 character maximum size for ID storage (P21).

Each time an *inbound truck*, *auto-tare* or *keyed in tare* operation is performed, a row is stored in the database. If a pre-existing truck ID is entered for any of these operations, the row in the database will be overwritten.

Database structure of stored "Weights" example:

(Legend of Weight type stored)

- `A = AutoTare`
- `M = Manual Tare`
- `I = Weigh In`

```
ID    Stored Wt     TrTim
358F     72200 lb A 12:10 am 01/23/96
3BC5     28350 lb I 12:10 am 01/23/96
652G     25500 lb M 12:11 am 01/23/96
7814     65850 lb M 12:11 am 01/23/96
ABA5     55100 lb I 12:10 am 01/23/96
```

Note that when the truck database is printed an ASCII sort operation is performed.

9.7 Additional Notes

Printing keyed in tares on labels can be flagged by enabling parameter P412. Refer to chapter 11, Pre-setable Parameters for more information.

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9.8 Example Setups

EXAMPLE #1: Truck IN/OUT (Program is on file at GSE, “truck455.set”)

100%s23640%i%e Access Setup Modes, Allowing Changes

NAME TRUCK REGISTERS

612%s%c	P612.-- TrGrs
613%s%c	P613.-- TrNet
614%s%c	P614.-- TrTar
621%sTRUCK ID#%e	P621.-- TRUCK ID#
650%s%c	P650.-- TrTim

SETUP INSTRUMENT FOR TRUCK ID OPERATION

720%s1%e	P720.01 Store: Truck
721%s8%e	P721.08 IDSiz

2nd CUSTOM TRANSMIT (TRUCK IN)

2999%s%c%e	P2000. Custom Transmit #2
.002%e	<STX>
Weigh In:%e	
.256%e	<CR> <LF>
.010%e	<LF>
%e11%e%e0%e%e	Tm/Dt Format = 0
.256%e	<CR> <LF>
%e21%e%e0%e%e	Tr ID Format = 0
.256%e	<CR> <LF>

3RD CUSTOM TRANSMIT (TRUCK OUT)

3999%s%c%e	P3000. Custom Transmit #3
.002%e	<STX>
.256%e	<CR> <LF>
.010%e	<LF>
.010%e	<LF>
.010%e	<LF>
.010%e	<LF>
.010%e	<LF>
Weigh Out:%e	
.256%e	<CR> <LF>
.010%e	<LF>
%e11%e%e0%e%e	Tm/Dt Format = 0
.256%e	<CR> <LF>
%e21%e%e0%e%e	TRUCK ID# Format = 0
.256%e	<CR> <LF>
.256%e	<CR> <LF>
%e12%e%e0%e%e	TrGrs Format = 0
.256%e	<CR> <LF>
%e14%e%e0%e%e	TrTar Format = 0
.256%e	<CR> <LF>

Weigh In:

11:51 am 01/2/96
37 TRUCK ID#

Weigh In:

11:51 am 01/2/96
37 TRUCK ID#

Weigh Out:

11:59 am 01/2/96
37 TRUCK ID#

10280 lb TrGrs
7540 lb TrTar
2740 lb TrNet

%e13%e%e0%e%e	TrNet Format = 0
.256%e	<CR> <LF>
%z	