

American Forklift Scale LLC

COMPULOAD 4000 Series MANUAL
(includes installation of the 4050 series printer)

Software Version 037

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Section 1

WARRANTY COMPULOAD 4000

THE COMPULOAD 4000 HAS NO USER SERVICEABLE COMPONENTS INSIDE DO NOT ATTEMPT TO DISMANTLE THE UNIT AS THIS WILL CAUSE YOUR WARRANTY TO BECOME NULL AND VOID.

The Manufacturer warrants the COMPULOAD Series 4000 load weighing gauge and any optional equipment to be free of defects in workmanship and material for a period of twelve (12) months from date of dispatch or installation, (whichever is applicable)

This Warranty only applies provided the COMPULOAD 4000 and accessories are used in accordance with the recommendations of The Manufacturer under normal use and reasonable care.

The warranty does not cover damage in any way whatsoever including transit damage. The warranty does not cover malfunction or failure resulting from misuse, neglect or abuse.

The warranty immediately becomes void should any repairs, alterations or modifications are carried out or attempted to be carried out by other than The Manufacturer

The warranty is not transferable and applies only to the original purchaser unless authorised by The Manufacturer

The warranty does not include travel expenses should a factory engineer or representative be required to preform repairs on site.

At the option of The Manufacturer any faulty units or components will be repaired or replaced free of charge whilst within the warranty period providing the unit or component is returned to our premises with freight pre-paid.

Our factory engineers will offer all possible assistance to rectify any difficulties experienced in the field. The larger majority of problems can be overcome by telephone. Please contact our office prior to forwarding any units or components for attention

NOTE Our carrier does not accept responsibility for loss or damage in transit. Should transit or freight loss or damage insurance be required it must be indicated on your order and the cost of such insurance will be charged accordingly.

Section 2
AN INTRODUCTION TO THE COMPULOAD 4000
WEIGHING SYSTEM

2.1 **MANUFACTURE**

Wholly made in Australia the COMPULOAD 4000 is a state of the art computerised stand alone on board instrument designed for measuring the weight of loads lifted by forklifts, front end loaders, log loaders or other hydraulically operated machinery. The weight is then totalised and linked to previously operator entered data and stored for later printout or download to a computer.

2.2 **STANDARD FEATURES**

- Accurate weighing in the following ways
 - a. On the move (as the load is lifted)
 - b. Static (stationary)
- Automatic totalising (operator selected)
- Data storage standard.
- Stored data can be downloaded onto computer spreadsheet.
- Can be calibrated to suit up to three machines.
- Target weight shows amount required to reach truck capacity as well as progressive total.
- Fully illuminated display.
- Date and time key.
- Overload warning.

2.3 **OPTIONAL FEATURES AND EQUIPMENT**

- 2.3.1 COMPULOAD 4050 printer allows hard-copy tickets as follows.
- a. Date and time stamped ticket showing individual lifts and total "CUSTOMER", "PRODUCT", "TRUCK" data is included. NOTE: These headings can be altered to suit specific requirement however for this manual we will use these defaults
 - b. All record printout at the end of day or shift to list days loading.
 - c. Summary printout as required (usually at the end of day or shift) to list all customers and their deliveries in order.
 - d. Printout at any time of individual "Customer", "Product", "Truck" loads and totals.
- 2.3.2 Software to allow downloading to laptop computer.
- 2.3.3. Expanded memory (standard memory allows for one thousand five hundred individual loads. (1500)

Section 3

OPERATOR USEABLE FUNCTIONS (unprotected)

- 3.1 FUNC 01 Set tare.
- 3.2 FUNC 02 Turn printer on/off.
- 3.3 FUNC 03 Data log options.
 - 3.3.1 Reset data logger
 - 3.3.2. Print options.
 - I. Print all data since last reset.
 - II. Print Summary of data.
 - III. Print particular Field one "Customer"
 - IV. Print particular Field two "Product"
 - V. Print particular Field three "Truck"
 - VI Print all records stored.
- 3.4 FUNC 04 Print progressive total on each printout if required.
- 3.5 FUNC 05 View Totals
 - I View total of all weight accumulated since last cleared
 - II View total from Field one (ie. A particular customer)
 - III View total from Field two (ie. A particular product)
 - IV View total from Field three (ie. A particular truck)
- 3.6 Enter data to be stored (suggested headings listed below can be altered to suit application)
 - FUNC 11 "Customer"
 - FUNC 12 "Product"
 - FUNC 13 "Truck"
- 3.7 FUNC 14 Enter target weight of vehicle to be loaded.
- 3.8 FUNC 17 Determine remote trigger task (ie: Automatic add etc)

Section 4

OPERATOR USEABLE FUNCTIONS (code protected)

- 4.1 FUNC 18 Carry out fine adjustment of span
- 4.2 FUNC 19 Alter channel (when refitted to another machine)
- 4.3 FUNC 20 Reset time.
- 4.4 FUNC 21 Reset date.
- 4.5 FUNC 22 Determine an amount (%) to be allowed over target weight.

Section 5

OPERATION PRINCIPAL

The COMPULOAD 4000 is designed to determine the weights being lifted by front-end loaders, log loaders, forklifts and other hydraulically operated lifting machinery. The load being lifted causes an increase in the hydraulic lifting pressure. This increase in pressure is converted to an electronic signal which in turn is converted into a weight reading. Because the pressure varies as the load is raised it is critical to determine an exact point to read the pressure every lift. This is done by mounting a magnetically operated switch onto the machine frame and a magnet onto the moving lifting arms. When the switch is activated by the passing magnet the COMPULOAD 4000 reads the pressure compensates the reading to allow for lift speed variation and then converts the reading to a weight. The weight is then added to a total either automatically or manually. During the totalising process the weight is stored with previously operator entered data.

Section 6

OPERATORS CONTROL PANEL AND LAYOUT

- 6.1 The user is provided with the following displays and control keys.
- a. A two line sixteen character per line illuminated display which indicates weight, totals and other messages and prompts.
 - b. Ten multi use alpha-numeric keys to allow entry of data, control of functions and viewing of time and date etc. (the specific use of each key is described later in this manual as their use becomes required)
 - c. One LOAD key to allow manual addition of weights and confirmation of data entry.
 - d. One CLEAR key to clear totalised weights, exit programming modes and quit functions without saving.
-

Section 7

METHODS OF WEIGHING

- 7.1 **LIFT SPEED COMPENSATED**
Allows the load to be weighed as it is lifted and compensates for the pressure differences due to different lifting speeds. The weight can be added into the total either manually or automatically (SEE FUNC 17)
- 7.2 **TRIGGER MODE**
Allows the load to be weighed as it is lifted similar to above but does not allow for variations in the lift speed. The weight can be added into the total either manually or automatically (See FUNC 17)
- 7.3 **STATIC MODE**
A simple form of weighing suitable for forklift applications and loader applications whereas the load is lifted to a pre-determined point and a weight reading is taken.
- 7.4 **THRESHOLD MODE**
Similar to 7.2 whereas a weight reading is obtained as the load is lifted however a pre-set pressure (See FUNC 42) instead of a switch is used to cause the COMPULOAD 4000 to begin taking weight sample readings. The Weight can be added into the total either manually or automatically (See FUNC 17)
-

Section 8

INSTALLATION PROCEDURE FOR THE COMPULOAD 4000

8.1 FITTING THE COMPULOAD TO THE OPERATORS CABIN

With its compact design and light weight the COMPULOAD 4000 instrument can easily be mounted within the operators compartment . Select a suitable location and using the mounting bracket as a template drill two holes and mount the bracket into position.

⇒ DO NOT DRILL OR WELD ONTO ANY PORTION OF A R.O.P.S.

A bracket however can be bolted onto a lock striker plate or window frame aperture. If an optional printer is to be fitted allow for this now as the mounting brackets are identical. See section 8.5 for wiring of the COMPULOAD

8.2 FITTING THE PRESSURE TRANSDUCER

8.2.1 PRECAUTIONS

- ⇒Lower bucket completely to the ground and stop the engine.
- ⇒Operate the tilt and dump levers to ensure no residual pressure is present in the hydraulic system.
- ⇒Remove the hydraulic tank filler cap to remove any pressure from the oil reservoir tank.
- ⇒Loosen any "easy to get at" fitting in the lifting circuit to ensure no pressure is present.

8.2.2 The transducer is to be fitted into the lifting circuit of the hydraulic system. If possible locate a fitting that can be removed to allow drilling and tapping. (See page 34) Failing this an adaptor can be fitted or the system will have to be entered by direct drilling and tapping. Enter the system by drilling (8.2mm) and tapping (1/8 BSPT). Ensure all swarf is removed and refit to machine. Connect appropriate fitting and hose to allow transducer to be mounted in a safe position. (usually under the operators cabin). Avoid areas that are subject to oil and water. Do not run cable through articulated area of the machine use hose in this area. Ensure the hose does not foul when machine is turned lock to lock. Connect the transducer to the hydraulic line. Start the motor and bleed the air from the line, then using spanners tighten the transducer. (see section 20 page 36 for wiring of the transducer.)

Section 8 Installing the COMPULOAD 4000 (cont.)

8.3 FITTING THE MAGNETICALLY OPERATED LIFT SPEED SENSOR SWITCH (See Figure 2 page 35 (Lift speed compensated and Trigger mode)

Firstly establish a weighing point. Raise the loader lifting arms up approximately horizontal to the lifting arm pivot points. Using a suitable bracket, mount the switch and magnet approximately 250mm - 750mm out from the pivot points with 10mm - 15mm clearance between the switch and the magnet. The magnet is to pass the switch on the blank face (opposite the cap) The magnet is to pass the switch on the lift cycle at approximately the horizontal point. The switch is mounted with the cable and cable flange pointing downwards. The switch is to be mounted at 90° to the centre line of the switch. Raise the lift arms up and down to ensure the switch and magnet do not foul the machine components. (see section 20 page 36 for wiring of the switch)

8.4 ESTABLISHING A WEIGHING POINT (Static mode)

When weighing in the static method a predetermined weighing point must be established. This is done by either. a). welding a pointer to the machine or b). adjusting the detent lift cutout so that the lifting arms stop lifting at a predetermined point. The weighing point should be when the loader arms are approximately horizontal to the loader arm pivot points.

8.5 WIRING OF THE COMPULOAD 4000 AND COMPONENTS

CAUTION DISCONNECT THE MACHINE BATTERY PRIOR TO ATTEMPTING TO CONNECT THE COMPULOAD 4000.

The COMPULOAD 4000 and COMPULOAD 4050 printer are designed to operate on either twelve (12) volt or twenty four (24) volt electrical systems with negative earth.

CONTACT YOUR SUPPLIER PRIOR TO WIRING THE COMPULOAD TO A MACHINE WITH EXCESS OF 24 VOLT DC POWER SUPPLY

8.5.1 Select a suitable location for the junction box (under the instrument panel dash panel or similar) avoid wet, dusty or oily areas.

8.5.2 A moulded wiring harness from the COMPULOAD 4000 to the junction box is supplied. The cable is simply plugged into terminals at the junction box and COMPULOAD at the 15 pin connector. Should the cable require the plug at the junction box end to be cut off (if the plug will not go through a selected opening or path.) an alternate junction box is available to accommodate the terminated cable showing cable termination colours. The chart on page 11 indicates the destination of each wire from the appropriate pin number should it be necessary to terminate the cable.
See also wiring diagram on Page 36

Section 8 Installing the COMPULOAD 4000 (Cont)

NOTE Refer to diagram on Page 36

- 8.5.3 Connect the transducer to the appropriately marked terminals.
- 8.5.4 Connect the magnetic switch to the appropriately marked terminals.
(Brown to load 1 and blue to gnd)
- 8.5.5 If applicable connect the COMPULOAD 4050 printer cables to the appropriately marked terminals.
- 8.5.6 Finally connect the power supply cables to the appropriate junction box terminals.
- 8.5.7 Secure all cables to the circuit board with a cable tie through the location holes in the circuit board.
- 8.5.8 Cut a slot in the end of the junction box to accommodate the wire cluster. Enclose the circuit board into the box and seal the opening.

NOTE: DO NOT USE SILASTIC OR OTHER ACID CURE SEALERS... USE NEUTRAL CURE SILICONE OR SIMILAR.

- 8.5.9 Connect the power supply cables to the proposed power outlet. (Usually at the rear of the ignition switch.)
- 8.5.10. Secure the box to the predetermined position with neutral cure silicone or similar adhesive.

8.6 WIRING DESTINATION AND PURPOSE CHART

PIN NO.	COLOUR	DESTINATION	PURPOSE
1	brown	earth	ground for power, printer & lift speed sensor
2	red	printer	transmit data
3	orange	printer	receive data
4	yellow	transducer	excitation -
5	green	transducer	excitation +
6	Dk. blue	lift speed sensor	measure lift speed
7	purple	remote load switch	manual load switch
8	grey	ignition "ON"	turn scale & printer on & off with ignition
9	not used	not used	not used
10	white	transducer	signal +
11	black	hold 1	not used
12	pink	printer	clear to send data
13	Lt. green	transducer	signal -
14	Lt. blue	not used	not used
15	Black/white	power supply	24 or 12 volt power supply

8.7 TRANSDUCER TYPE WIRING COLOUR CHART

<u>Type</u>	<u>Excitation +</u>	<u>Excitation -</u>	<u>Signal +</u>	<u>Signal -</u>
PIODEN	RED	YELLOW	BLUE	GREEN

Section 9

PREPARING THE COMPULOAD 4000 FOR CALIBRATION

Now that the COMPULOAD is installed and connected both to the electrical system and the hydraulic system the indicator should show a reading once the battery is connected.

The COMPULOAD 4000 is a very intelligent and precise instrument and will suit many applications consequentially has to be "set up" to suit the individual application. This section outlines the settings and functions (hereafter referred to as FUNC) available to suit the various applications. We have made every endeavour to describe the functions and their use in easy to follow instruction.. If in doubt leave the setting as it is and contact the supplier who will advise a suitable setting.

NOTE 1 A full list of functions and their use is listed on page 19 of this manual.

NOTE 2 When the application is known the settings will be set as near as possible prior to leaving the factory.

The various functions are grouped and protected by either a two (2) digit security code or a four (4) digit MANUFACTURERS security code. They are accessed by pressing FUNC and the corresponding function number The setup functions are set as follows and are confirmed with the LOAD key or can be erased with the CLEAR key.

NOTE:- A two second press of the CLEAR key allows exit without saving.

9.1 PREPARATION FUNCTION CHART

NOTE Use UP/DOWN/.LEFT/RIGHT keys to set as detailed and LOAD to confirm.

Use CLEAR for two seconds to exit or quit without saving the setting

FUNC	PURPOSE	SECURITY	DETAILS
20	Set Time	low	Use UP/DOWN/LEFT/RIGHT keys to set.
21	Set Date	low	Use UP/DOWN/LEFT/RIGHT keys to set.
22	Set overload above total	low	Select desired percent above truck total alarm. Key in selected amount
23	Set Hold time	high	Time in seconds weight will be displayed once obtained. Key in selected time
24	Set Load time	high	Time in seconds allowed between each add of weights into total. Key in selected time
25	Set Need time	high	Time in seconds amount of weight to reach truck total will be displayed Key in selected time
26	Set Ignition	high	Determines whether COMPULOAD switches on/off with ignition switch. Use UP/DOWN key to set

Section 9.1 Preparation Function Chart (cont.)

FUNC	PURPOSE	SECURITY	DETAILS
27	Set Units	high	Allows weight to be displayed in Kg/T/Lb or blank. Use UP/DOWN keys to set.
28	Set decimal point	high	Allows decimal point position to be set. Use UP/DOWN keys to set.
29	Set Resolution	high	Allows display to increase in the selected increment. Key in increment.
30	Set negative numbers	high	Allows negative readings to be turned ON/OFF. Use UP/DOWN keys to alter.
31	Set Stability	high	Only accessible in "static" weighing mode (see FUNC 40) Causes display to blank out whilst pressures are changing or unstable. 0 = turned off. 1 = max. 100 = min. Key in amount.
32	Set filter	high	This is digital filtering and removes unwanted signal spikes 0 = lowest 8 = highest Key in amount.
33	Set Sample	high	Determines the number of sample readings rate taken per second in multiples of ten (10) 10 = lowest, 100 = highest. Use UP/DOWN key to select
34	Set Input. F.S.D.	high	Shows typical maximum allowable millivolt Input together with F.S.D. (Full scale deflection) with machine fully loaded and at weighing point. Set input as high as possible without going into overrange (-----) Use UP/DOWN key to select
40	Mode of weighing	high	Options a. Lift speed compensated (See 7.1) b. Trigger mode (See 7.2) c. Static mode (See 7.3) d. Threshold mode (See 7.4) Use UP/DOWN keys to select.
41	Trigger task	high	Determines action required from magnetic switch. When in Trigger or Lift speed compensated modes. Options are a..Does nothing. b..Holds reading only. c..Holds reading and adds it into TOTAL Use UP/DOWN keys to select option

Section 9.1 PREPARATION FUNCTION CHART (continued)

FUNC PURPOSE SECURITY DETAILS

NOTE:- FUNC 42, 43, 44, not accessible in "static" mode

42	Set Threshold high	(only accessible when in "threshold " weighing mode) (See FUNC 40 and section 7.4) Reading is related to F.S.D. (See FUNC 34) Key in threshold setting.
43	Set Average Time high	Determines the period in seconds that the COMPULOAD will take sample readings at the pre-determined rate (FUNC 33) (When in Lift Speed Compensated, Trigger, or Threshold modes) Key in selected period.
44	Set Lift Time high	Allows a period in seconds that the COMPULOAD will ignore prior to starting Average time (FUNC 43) readings. (usually only used when in Threshold weighing mode) Key in selected period.
45	Set Filter high	Allows the digital filtering (FUNC 32) to be overridden and preformed automatically. When in "auto" mode a different method of taking sample readings is utilised to the method in "manual" mode Use UP/DOWN keys to select

Section 10

ALLOWING FOR LIFT SPEED COMPENSATION

NOTE:- FUNC 50, 51, 52, 54 are only accessible in "lift speed compensated" weighing mode (see func 40 a)

FUNC PURPOSE SECURITY DETAILS

50	Set No. of lift speed	high	Determines the number of speed changes when setting the lift speed compensation gain. changes (the number of speed changes from the slowest speed to the fastest speed) (see FUNC 52) The least number of lift speed changes = 2 The most number of lift speed changes = 6. Key in required number.
51	LSC speed change %	high	Determines the maximum allowable speed change at any one lift speed when setting the lift speed compensation gain (see FUNC 52) lowest = 0% highest = 50%. Key in required number.

SECTION 11

CALIBRATING THE COMPULOAD 4000 and SETTING THE LIFT SPEED COMPENSATOR. (Lift Speed Compensated and Trigger Mode)

NOTE:- Up to this stage the FUNCTIONS are set to suit your particular application. They were set by your supplier or by yourself on the recommendations of your supplier. If in Lift Speed Compensation mode follow the instructions from FUNC 52 to FUNC 55 carefully. They are critical for accurate weighing and repeatable readings

FUNC

52 Lift Speed Compensation Zero Calibration

A Function required to set the Lift Speed Compensation Zero Values. When entered Func 52 will display

“Lift Speed Comp.”
“Zero Calibration”

for two seconds then change to.

“LSC Pt1 = 0”

NOW CARRY OUT THE FOLLOWING STEPS

- a. Raise the empty bucket up past the electronic lift speed sensor at the lowest practical speed. The reading will change to
“LSC Pt1 = XX”
“0.00% SPEED XX” (XX = the lifting speed)
- b. Lower bucket to ground then lift at the same speed again. The reading will change to
“LSC Pt1 = XX”
“Z.ZZ% SPEED XX” (Z.ZZ% = the change in pressure
NOTE:- If this lifting speed varies in excess of the setting referred to in FUNC 51 The display will show
“LIFT SPEED > XX %” (XX being the difference
“LAST WT IGNORED” allowed in FUNC 51)
- c. Repeat step b three or four times.
- d. Press LOAD key
display will change to
“LSC Pt2 = XX”
- e. Increase the lifting speed and raise the load up past the electronic speed sensor at the next highest lift speed . The display will change to
“LSC Pt2 = XX”
“0.00% SPEED XX”
- f. Lower bucket to ground again then lift at the same speed again. The reading will change to
“LSC PT2 = XX”
“Z.ZZ% SPEED XX”
NOTE If this lifting speed varies in excess of the setting referred to in FUNC 51 the display will show
“LIFT SPEED > XX%” XX being greater than the
“LAST WT IGNORED” difference allowed in FUNC 51)

Section 11 Func 52 (Cont)

- g Repeat step f two or three times.
- h Press LOAD key.

REPEAT THESE STEPS FOR THE NUMBER OF LIFT SPEED CHANGES SELECTED IN FUNC 50. THE LAST SPEED BEING THE FASTEST PRACTICAL LIFTING SPEED.

When LOAD is pressed after the last speed is reached the COMPULOAD will proceed to the next Function

FUNC

- 53 Setting the ZERO reference point.
A Function to establish a ZERO reference point to offset unwanted weights (Bucket etc.)
Display will show **“SET ZERO”**
“Waiting For Lift”
Raise empty bucket up past the Electronic switch at a normal working speed.
Display will show.. **”SPEED = XX”**
“Lift Wt 00.00”
Raise empty bucket up past the Electronic switch a series of lifts (three or four times)
Press "LOAD" key to store Zero point. Display will show
“ZERO Calibration End”
Then proceed to. FUNC 54

FUNC

- 54 Lift Speed Compensation Gain Calibration
Lift speed compensation gain is ideally preformed with as near as possible to the normal load being lifted. Otherwise use as much weight as possible.
When entered FUNC 54 will display
“Lift Speed Comp”
“Gain Calibration”
for two seconds then change to.
“LSC Pt1 = 0

NOW CARRY OUT THE FOLLOWING STEPS

- a. Raise the load up past the electronic lift speed sensor at the lowest practical speed. The reading will change to
“LSC Pt1 = XX”
“0.00% SPEED XX” (XX = the lifting speed)
 - b. Lower load to ground again and lift at the same speed again. The reading will change to
“LSC Pt1 = XX”
“Z.ZZ% SPEED XX” Z.ZZ% = the change in pressure
- NOTE:- If this lifting speed varies in excess of the setting referred to in FUNC 51 The display will show
“LIFT SPEED > XX %” (XX being the difference

“LAST WT IGNORED” allowed in FUNC 51)
Section 11 Function 54 (Cont)

- c. Repeat step b three or four times.
- d. Press LOAD key. The display will change to
“LSC Pt2 = 0”
- e. Increase the lifting speed and raise the load up past the electronic speed sensor at the next highest lift speed . The display will change
to

“LSC Pt2 = XX”
“0.00% SPEED XX”

- f. Lower load to ground again and lift at the same speed again.
The reading will change to

“LSC PT2 = XX”
“Z.ZZ% SPEED XX”

NOTE If this lifting speed varies in excess of the setting referred to in
FUNC 51 the display will show

“LIFT SPEED > XX%” XX being the difference
“LAST WT IGNORED” allowed in FUNC 51)

REPEAT THESE STEPS FOR THE NUMBER OF LIFT SPEED CHANGES
SELECTED IN FUNC 50. THE LAST SPEED BEING THE FASTEST PRACTICAL
LIFTING SPEED.

When LOAD is pressed after the last speed is reached the COMPULOAD will
proceed to the next Function

FUNC

55 Display will show **“ENTER WEIGHT”**
“0.00”

Key in Proposed calibration weight Press "LOAD" Display will show .
“Waiting For Lift”

Apply the Calibration weight and raise it up past the electronic switch at a
normal working speed. Display will show

“ Speed = XX”
“Lift Wt = XX”

Raise the calibration weight up past the Electronic switch a series of lifts
(three or four times) Press "LOAD"

Display will show. **“CALIBRATION END”**

Then Show **“FUNCTION END”**

Section 12
CALIBRATING THE COMPULOAD 4000
Static Mode and Threshold Mode

12.1 SETTING THE ZERO.

Raise the empty bucket up to the weighing reference as described in Operator Instruction. (Section 14.2 (a).

Press the "ZERO " key for two (2) seconds. The display will show

“WEIGHT 0.00”
“TOTAL X.XX”

12.2 SETTING THE WEIGHT CALIBRATION

FUNC

55 a Raise known weight to the weighing reference as described in Operator instruction. (Section 15. 14.2 (b).

b Enter FUNC 55

Display will show **“Calibration”**
“Current Wt. X.XX”
Then change to **“Enter weight”**
“XX”

c Key in Calibration Weight

d Press "LOAD" Key. Display Will Show.
“CALIBRATION END.”

Then Show

“FUNCTION END”

After you are satisfied that the COMPULOAD 4000 is calibrated it is recommended that you "back up" the calibration values. This is achieved using

FUNC 56 Back Up Calibration Values.

Section 13

PRINTER FUNCTION CHART (only applies if printer fitted)

NOTE 1 Function 70 - 74 will be pre-set to suit the COMPULOAD 4050 Printer or other printer if supplied with the COMPULOAD 4000. Should other printers be used refer to the Printer manual for setup.

FUNC	PURPOSE	DETAILS
70	Printer Time Delay	This is the time delay the printer requires to print a line of text. If characters are garbled mixed up or missing up increase this reading. If excessive delay between lines decrease this reading. Key in selected period.
71	Line feed Between Total	Determines how far the paper comes out after each printout. Key in required amount.
72	Printer CR or LF	Determines the type of command to the printer to cause the paper to come out after each printout. Options are CR , LF , CR and LF. Use UP/DOWN keys to select.
73	Printer CTS Enable	Determines the type of signal from the printer to the COMPULOAD to allow data to be printed Use UP/DOWN keys to select.
74	Printer Baud Rate	Determines the speed data in sent to the printer The COMPULOAD and printer speeds must be compatible. Use UP/DOWN keys to select.
75	Printer Header One	Allows the first line of the printer heading to be entered. Sixteen (16) characters. Use keypad to enter heading.
76	Printer Header Two	Allows the second line of the printer heading to be entered. Sixteen (16) characters. Use keypad to enter heading.
77	Print record number	Allows each printed ticket to have a record number allocated. The record number is printed on each ticket Use UP/DOWN to select.

BASIC WEIGHING AND TOTALISING

14.1 lift speed compensated method.

- 1.. With the bucket empty and fully crowded raise up through the lift sensor switch at a normal lifting speed. If other than 0.00 (zero) is displayed press ZERO for two seconds to zero display.
- 2.. Apply the load and raise up through the lift sensor switch. Display will show "weighing" then the weight will be displayed. for a pre-determined period (usually 8 - 12 seconds)
- 3.. Press LOAD to add weight into the 'total' display.
4. Press CLEAR for two seconds when required total is reached. This returns TOTAL display to 0.00 and allows data to be stored (if applicable) (see storing data)

NOTE 1. For automatic totalising enter "Func 17" select "hold & add" using the UP/DOWN keys then press LOAD to save selection. This allows automatic adding of the weight to the 'total' as it is weighed.

FUNC 17 allows the lift sensor to perform tasks as follows.

- | | | |
|---|--------------|--|
| a | HOLD & ADD | Weight is "held" on display for a pre-determined period. Weight is automatically added into the TOTAL display. |
| b | HOLDS ONLY | Weight is "held" on display for a pre-determined period. Weight can be added into TOTAL display with LOAD key. |
| c | DOES NOTHING | No action from lift sensor. |

Use UP/down keys to scroll through options. Press LOAD to save selection.

NOTE 2. Press UNDO within the eight seconds to deduct the last added weight from the 'total'.

NOTE 3 Func 14 allows operator to enter target weight to load onto truck. Compuload will show "enter alarm weight"
Use key-pad to enter truck capacity. 0.00 turns target weight alarm off
Press LOAD to save setting

NOTE 4.

Whilst the Compuload 4000 is designed to weigh loads as the machine is operated and the load is lifted some conditions may cause variations to the weight readings. Results can generally be improved by using care whilst weighing.

- I) Lift the load at a smooth speed through the lift sensor.
- II) Avoid excessive bounce on rough surfaces whilst weighing.
- III) Regularly check the zero. (Step 1)

Section 14 (Cont)
BASIC WEIGHING AND TOTALISING

14.2 Static weighing method

NOTE 1 All reference to weighing position refers to raising the bucket fully crowded up to a pre-determined position and lowering slightly and slowly.

The pre-determined position may be determined by either a pointer or having the lift detent cut-out set at a given position.

- a.. With the bucket empty raise up to the weighing position.
(If other than 0.00 (zero) is displayed press ZERO key for two seconds.
- b.. Apply the load and raise up to the weighing position. (the weight will be displayed on the top line of the display)
- c.. Press LOAD to add weight into the 'total' display.

NOTE 2 For further weighings carry out steps 2 & 3.

NOTE 3 Func 14 allows operator to enter target weight to load onto truck.
Compuload will show "enter alarm weight"
Use key-pad to enter truck capacity. 0.00 turns target weight alarm off
Press LOAD to save setting

Section 15
OPTIONS AVAILABLE

The following options are available to the operator if required and as required. They are entered by pressing FUNC key and the corresponding number. pressing LOAD saves the setting and proceeds to the next function. Pressing CLEAR exits the function without altering the setting.

15.1 USER ACCESSIBLE OPTIONS

- FUNC 01** **SET TARE** (Not normally used on loaders)
Allows a pre-set tare to be entered and deducted from the actual weight. Pressing the * key causes the display to toggle between the actual weight and the "nett" weight. Use key-pad to enter required 'tare'. Press LOAD
- FUNC 02** **PRINTER STATE**
Turns external printer (if fitted) ON / OFF. Use UP / DOWN keys to select. Press LOAD
- FUNC 03** **DATA LOG OPTIONS**
See Recovery of Data and Printout Option section
- FUNC 04** **GRAND TOTAL**
Allows a progressive grand total to be printed on each ticket (if printer fitted) Use UP / DOWN to select. Press LOAD.
- FUNC 05** **VIEW TOTALS**
Allows Grand total or selected totals of each field to be viewed if required. Use UP / DOWN & LEFT / RIGHT keys to select.

15.2 CODE PROTECTED OPTIONS Requires a code to be entered to allow access

- FUNC 18** **FINE ADJUSTMENT OF SPAN**
Allows fine adjustment of accuracy of weighing system. Can be increased or decreased by a percentage as required. Use UP / DOWN to alter Press LOAD to save.
- FUNC 19** **SET CHANNEL**
Allows channel to be changed to allow the COMPULOAD 4000 to be changed to another machine or weigh in a different method. Key in channel number Press LOAD.
- FUNC 20** **SET TIME**
Allows time clock to be reset Use UP / DOWN & LEFT / RIGHT keys to set. Press LOAD
- FUNC 21** **SET DATE**
Allows date to be reset Use UP/DOWN/LEFT/RIGHT keys to set. Press LOAD.
- FUNC 22** **SET OVERLOAD ABOVE TOTAL**
Allows the truck target total to be exceeded by a percentage amount. Key in percentage. Press LOAD

Section 16

STORING OF DATA INTO THE COMPULOAD 4000

The Compuload 4000 has three fields into which data can be stored. The factory defaults are "customer", "product", "truck" These fields can be altered to suit your application however for this exercise we will use these field names.

To store into these fields enter

- FUNC 11 **Compuload will show "enter customer 1"** Use UP/DOWN keys to select previously entered 'customer' or press CLEAR key to enter a new customer with key-pad. Press LOAD.
Compuload will show.
- FUNC 12 **"enter product 1"** Use UP/DOWN keys to select previously entered 'product' or press CLEAR key to enter a new product with key-pad.
Press LOAD.
Compuload will show.
- FUNC 13 **"enter truck 1"** Use UP/DOWN keys to select previously entered 'truck' or press CLEAR key to enter a new truck with key-pad.
Press LOAD.
Compuload will show.
- FUNC 14 **"set alarm weight"** Use key-pad to enter target weight to load onto truck. 0.00 turns target weight alarm off Press LOAD.

Section 17

RECOVERY OF STORED DATA and PRINTOUT OPTIONS

Data stored in the memory of the COMPULOAD 4000 can be recovered and handled in the following manner.

FUNC 03 DATA LOG OPTIONS

Use UP / DOWN keys to select and LOAD key to confirm.

- A. PRINT Allows the following printouts.
Use UP/DOWN & LEFT/RIGHT keys to select
 - a. LOGS All data stored in memory since last reset.
 - b. SELECTION from FIELD 1 (customer)
 - c. SELECTION from field 2 (product)
 - d. SELECTION from field 3 (truck)
 - e. PRINT SUMMARY Allows data in memory to be printed out in a format whereas data stored in FIELD 1 is linked to data stored in FIELD 2. It is designed to allow easy invoicing from the printout.
 - f. PRINT ALL All the records stored in the memory (up to approximately 1500 records)
- B. RESET Allows The data logger to be reset. Printout or download of data can be started from this point. The option required confirmation of the reset with the UP key. DOWN aborts the "reset"

Section 18

FUNC 05 VIEW TOTALS

Allows Grand total or selected totals of each field to be viewed if required. Use UP/DOWN & LEFT/RIGHT keys to select.

Section 19
FUNCTION LIST FOR THE COMPULOAD 4000 Ver 0.36

- NOTE 1:- Select required function then press LOAD to confirm or CLEAR for two seconds to quit without saving
- NOTE 2:- Functions 01 - 17 are not code protected
 Functions 18 - 22 are low security code protected
 Functions 23 - 99 are high security code protected

FUNC	DESCRIPTION	PURPOSE
01	Set Tare	Allows a pre-set tare to be deducted from weight Key in required tare.(nett gross weights are then available with the * key.
02	External Printer	Allows external printer to be turned On or off. Use UP/DOWN keys to turn ON/OFF
03	Data Logger Options	Allows for data printouts/download/erase Use UP/DOWN keys to select and LOAD key to confirm
	RESET	Allows the data logger to be reset to determine the point from which records are to be printed
	PRINT	Allows the following printouts
	I.	LOGS All data from last “reset”
	II.	SELECTION from FIELD 1 (customer)
	III.	SELECTION from FIELD 2 (product)
	IV.	SELECTION from FIELD 3 (truck)
	V.	PRINT SUMMARY Allows data in memory to be printed out in a format whereas data stored in FIELD 1 is linked with data stored in FIELD 2 and is designed to allow for easy invoicing from the printout.
	VI	ALL All records sores in memory (up to 1500 records Use UP/DOWN & LEFT/RIGHT keys to select option
04	Set Grand TOTAL	Allows progressive grand total to be printed on each printout. Use UP/DOWN Keys to set.
05	View Grand Total	Allows viewing of Grand Total or a selection from FIELD 1 (customer) FIELD 2 (product) or FIELD 3 (truck) Use UP/DOWN LEFT/RIGHT keys to select

Section 19 (Cont)

COMPULOAD 4000 FUNCTION LIST

FUNC	DESCRIPTION	PURPOSE
11	Enter Field 1 (Customer)	Select choice from Field 1 (customer) by using UP/DOWN to select from data base or press CLEAR to enter new customer with key pad
12	Enter Field 2 (Product)	Select choice from Field 2 (product) by using UP/DOWN to select from data base or press CLEAR to enter new product with key pad
13	Enter Field 3 (Truck)	select choice from Field 3 (truck) by using UP/DOWN to select from data base or press CLEAR to enter new truck with key pad.
14	Enter target	Enter target weight for total alarm. Set at (0) to turn off. Enter proposed weight with key-pad.
17	Trigger Task	(not applicable in static weighing) (See func 40) Options are a. DOES NOTHING No action b. HOLDS ONLY Weight is "held" on display for a pre determined period. Weight can be added to TOTAL display with LOAD key. c. HOLDS & ADDS Weight is "held" on display for a pre determined period. Weight is automatically added to TOTAL display Use UP/DOWN keys to scroll through options.
18	Fine Span Adjustment	Allows span to be 'fine tuned' to allow for minor variations in true weight readings. Use UP/DOWN keys to alter.
19	Set Channel	Allows channel to be changed when indicator is changed from one machine to another or set to weigh in a different method. NOTE:- Indicator has to be calibrated in different channel. Use UP/DOWN keys to set
20	Set Time	Allows time to be reset. Use UP/DOWN/ LEFT/RIGHT keys to set
21	Set Date	Allows date to be reset. Use UP/DOWN LEFT/RIGHT keys to set.
22	Set Overload Above Total	Allows truck total (Func 14) to be exceeded by a percentage amount. Use UP/DOWN keys to set

Section 19 (Cont)

COMPULOAD 4000 FUNCTION LIST

FUNC	DESCRIPTION	PURPOSE
23	Set HOLD time	To set in seconds the period the weight is 'held' on the display Key in required time.
24	Set LOAD time	To set a period in seconds before another weight can be added into the TOTAL display. Key in required delay time.
25	Set NEED time	To set in seconds the period the display will show the weight required to reach the Total Overload Alarm. (func 14) Key in desired time
26	Set Ignition Detect	When ON allows the COMPULOAD to turn ON & OFF with the ignition if connected. When OFF indicator is on at all times. Use UP/DOWN keys to turn ON or OFF NOTE:- If the Func is turned ON and no power is applied to the IGN terminal at the junction box the function can be by-passed to allow the function to be turned OFF by holding UP & DOWN keys together for five (5) seconds.
27	Set Display Units	To allow the weight to be displayed in Kg, t, lb, or blank. Use UP/DOWN keys to set
28	Set Decimal Pt	Allows decimal point to be set in one, two, or three position. Use UP/DOWN key to set
29	Set Resolution	Allows the display to alter in increments of the selected resolution. Key in desired resolution.
30	Display Negative	Allows the display of readings less than the Numbers zero reference to be displayed or not. If turned off only a minus sign shows for negative readings. Use UP/DOWN keys to set
31	Set Stability	Only applies in Static weighing mode. Allows the display to blank out whilst the pressures are changing or unstabilised. The lower the setting the more stable the pressure has to become before the weight is displayed 0 = OFF 100 = Max. Key in desired setting

Section 19 (Cont)

COMPULOAD 4000 FUNCTION LIST

FUNC	DESCRIPTION	PURPOSE
32	Set Filter	<p>This is digital filtering and is designed to filter out unwanted signal spikes.</p> <p>NOTE. Affects signal in Static or threshold weighing modes. Also affects signal in manual filter mode Refer Func 45. 0 = min 8=max (The optimum setting is 2-4). Key in desired filter.</p>
33	Set Sample Rate	<p>This determines the number of sample readings taken per second. Min = 10 Max = 100. (Optimum setting is 30-60). Use UP/DOWN key to set.</p>
34	Set Input FSD	<p>Shows the Max Millivolt input allowed. With machine fully loaded use UP/DOWN keys to set Full Scale Deflection (FSD) to highest reading without going into overrange. (-----)</p>
35	Set Overload	<p>Allows an audible and visual alarm to activate if this setting is exceeded. Key in required alarm setting.</p>
36	Set Alarm Delay	<p>Allows a delay in seconds before the overload alarm (func 35) sounds. Key in required delay</p>
40	Set Weighing method	<p>Allows the method of weighing to be determined The options are</p> <ul style="list-style-type: none"> <li data-bbox="606 1321 1356 1545">a. LIFT SPEED COMPENSATED Allows the load to be weighed as it is lifted and compensates for the pressure differences due to different lifting speeds. The weight can be added into the total either manually or automatically (SEE FUNC 17) <li data-bbox="606 1556 1356 1747">b. TRIGGER MODE Allows the load to be weighed as it is lifted similar to above but does not allow for variations in the lift speed. The weight can be added into the total either manually or automatically (See FUNC 17) <li data-bbox="606 1780 1356 1962">c. STATIC MODE A simple form of weighing suitable for forklift applications and loader applications whereas the load is lifted to a pre-determined point and a weight reading is taken.

Section 19 (Cont)

COMPULOAD 4000 FUNCTION LIST

FUNC DESCRIPTION	PURPOSE
	<p>d. THRESHOLD MODE Similar to b. whereas a weight reading is obtained as the load is lifted however a pre-set pressure (See FUNC 42) instead of a switch is used to cause the COMPULOAD 4000 to begin taking weight sample readings. The Weight can be added into the total either manually or automatically (See FUNC 17) Use UP/DOWN key to select.</p>
41 Set Trigger Task	Same as Func 17
42 Set Threshold	<p>Only accessible in Threshold weighing mode. This is the percentage of F.S.D. the pressure has to go below and then exceed to allow the threshold weighing method to begin (see func 40 .d). Key in required threshold point.</p>
43 Set Average Time	<p>This is the period in seconds the COMPULOAD takes sample readings in all weighing methods except static The optimum setting is 0.5 - 1.5 seconds. Key in desired average time.</p>
44 Set Lift Time	<p>This function is not normally used. If required this is a delay time in seconds after the speed sensor switch is tripped or the threshold is exceeded that readings are ignored prior to the average time (func 43) taking effect. Key in desired lift time</p>
45 Set Filter	<p>Allows the digital filtering (func 32) to be overridden and preformed automatically. When in "auto" mode a different method of taking sample readings is utilised to the method in "manual" mode. Use UP/DOWN keys to select</p>
NOTE:-	<p>Functions 50, 51, 52 & 54 are only accessible when in Lift Speed Compensated Mode</p>
50 Set Number of lift speed changes	<p>Determines the number of speed changes when setting the lift speed compensation gain. (the number of speed changes from the slowest to the fastest) (see FUNC 52) lowest = 2 highest = 6. Key in required number.</p>

Section 19 (Cont)

COMPULOAD 4000 FUNCTION LIST

FUNC	DESCRIPTION	PURPOSE
51	LSC speed change %	Determines the maximum allowable speed change at any one lift speed when setting the lift speed compensation gain (see FUNC 52) lowest = 0% highest = 50%. Key in required number.
52	Set lift speed Compensation Zero	Allows for the variations in lifting pressure due to different lifting speeds (Without a load)
53	Set Zero Calibration	Allows the Zero reference point to be set. (See section 11 page 16 and section 12.1 page 18)
54	Set lift speed Compensation Gain	Allows for the variations in lifting pressure due to different lifting speeds. (When fully loaded)
55	Set Weight Calibration	Allows for the calibration of the indicator (See section 11.0 and 12.2)
56	Backup Calibration Values	Allows for calibration and function values to be backed up
57	Restore Calibration Values	Allows for the calibration values backed up in Func 56 to be restored.
58	Reset Lift Speed Gain Compensation	Resets the Lift Speed Compensation gain settings to nil (func 52) (No compensation)
59	Reset Lift Speed Zero Compensation	Resets the Lift Speed Compensation zero settings to nil (func 54) (no compensation)
60	Reset Data logger	Allows for complete reset of data logger to factory Defaults
70	Printer Time Delay	This is the time delay the printer requires to print a line of text. If characters are garbled mixed up or missing increase this reading. If excessive delay between lines decrease this reading. Key in selected period.
71	Line feed Between Total	Determines how far the paper comes out after each printout. Key in required amount.
72	Printer CR or LF	Determines the type of command to the printer to cause the paper to come out after each printout. Use UP/DOWN keys to select.

Section 19 (Cont)

COMPULOAD 4000 FUNCTION LIST

FUNC	DESCRIPTION	PURPOSE
73	Printer CTS Enable	Sends a signal from the printer to the COMPULOAD to allow data to be printed Use UP/DOWN keys to select.
74	Printer Baud Rate	Determines the speed data in sent to the printer. The COMPULOAD and printer speeds must be compatible. Use UP/DOWN keys to select.
75	Printer Header One	Allows the first line of the printer heading to be entered. Sixteen (16) characters. Use keypad to enter heading.
76	Printer Header Two	Allows the second line of the printer heading to be entered. Sixteen (16) characters. Use keypad to enter heading.
77	Print Record numbers	Allows each printed ticket to be numbered. Record number also appears on all records printout. Use UP/DOWN keys to select.
80	Wake up message message 1 line 1	Allows message one line one of the indicator wake up to be programmed. Use keypad to enter.
81	Wake up message message 1 line 2	Allows message one line two of the indicator wake up message to be programmed. Use keypad to enter.
82	Wake up message message 2 line 1	Allows message two line one of the indicator wake up message to be programmed. Use keypad to enter.
83	Wake up message message 2 line 2	Allows message two line two of the indicator wake up message to be programmed. Use keypad to enter.
84	Wake up message message 3 line 1	Allows message three line one of the indicator wake up message to be programmed. Use keypad to enter.
85	Wake up message message 3 line 2	Allows message three line two of the indicator wake up message to be programmed. Use keypad to enter.
86	Ignition wake up Delay	Allows delay in obtaining a reading when ignition is turned on. Prevents start up electrical spikes affecting the readings. Default = 15 secs. Use keypad to alter.

Section 19 (Cont)
COMPULOAD 4000 FUNCTION LIST

NOTE:- Functions 90 to 94 apply to the fields referred to in Function 11, 12 and 13. If the field in function 90, 92 or 94 respectively is left blank the corresponding function 11, 12 or 13 will not be accessible.

FUNC	DESCRIPTION	PURPOSE
90	Set Field One Title	Allows for field one (Func 11) title to be altered as required (Default = Customer) Key in new title with keypad
91	Set Field One Length	Set the number of entries (customers) in field one. Key in number. with keypad.
92	Set Field Two Title	Allows for field two (Func 12) title to be altered as required (Default = Product) Key in new title with keypad
93	Set Field Two Length	Set the number of entries (Products) in field one. Key in number. with keypad.
94	Set Field Three	Allows for field three (Func 13) title to be altered as required (Default = Truck) Key in new title with keypad

NOTE:- A total of 250 field names are available. If field 1 has 50 entries and field 2 has 50 entries then field three will have 150 entries available.

98	Ram Dump	(for system analysis)
99	Set Security Codes	Allows the high and low security codes to be altered if necessary

NOTE 1 A Special function to reset the EEPROM and allow the COMPULOAD 4000 to return to the factory pre-sets is available .All settings and data will be lost. Apply Power and after the first "wake up" message has disappeared press the LOAD and CLEAR keys simultaneously.