DVW-HC Series Portable Vehicle Weighing Instrument

User's Manual

Chapter 1 Summary

BX series vehicle weighing system contains one instrument(wireless dynamic and static instrument i.e. WDSI) and two weighing pads. The weighing pad dimension is 800×350×22mm, and is made of hard aluminum alloy. Its weight is 28 kg. Numbered options are adopted in the English interface. The comprehensive dynamic accuracy is less than 3%, and the comprehensive static accuracy is less than 0.5%. So BX series products can be widely used in the following fields:

1) Simple vehicle weighing system;
2) Overload check;
3) Security check.

Chapter 2 Function & technical parameters

2.1 Function description

1) Weighing pad
   a) dimension: 800×350×22mm
   b) weight: 28kg
   c) height: 22mm
2) Double LCDs are used.
3) Display date and time, truck no and ticket no are manually input. Battery voltage monitor is indicated and alarm can be generated.
4) Measure and display vehicle velocity(km/h).
5) Floating technology is adopted to remove zero drift.
6) Numbered options.
7) Vehicle axle weight is measured axle by axle, and the max number is up to 20.
8) Micro printer is embedded in the WDSI, the print ticket contains date, time, truck no, ticket no, axle weight,link axle weight, truck weight, overload and executive organization.
9) RS232 port is used to communicate with PC.
10) Long life-span storage battery ensures long-time operation in field.
11) In static mode, customer and cargo no can be input.
12) Max stored records are up to 300.

2.2 Technical parameters

1) Weighing span
   a) wheel weighing span: 0~20T
   b) axle weighing span: 0~40T
   c) total weighing span: 0~200T
2) Double LCD display
   a) axle weight display: 0~99995kg
   b) total weight display: 0~999995kg
   c) display unit height: 13mm
3) 128×64 dot matrix display, 16 pages of functional options

4) 24 bit high-conversion ADC, conversion velocity is up to 1000/s

5) analogue conversion division: 0.5uV

6) accuracy

a) static

①≤20%FS, ±0.3% F.S

②>20%FS, ±0.5% F.S

b) dynamic(<5km/h)

①≤20%FS, ±1% F.S

②>20%FS, ±3 % F.S

7) vehicle moving velocity: 3~5km/h

8) weighing pad power supply: 6V DC, 1A

9) running temperature: -10℃~60℃

10) relative humidity: 90%

11) dimension

a) weighing pad: 800×350×22mm

b)WDSI: 430×335×190mm

12) weight

a) weighing pad: 28kg

b) WDSI: 10kg

Chapter 3 System configuration

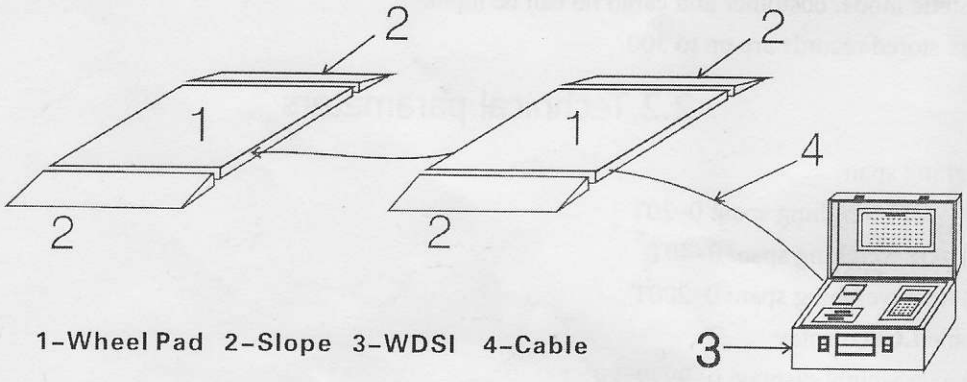
3.1 Component

system component: 1) wireless weighing pad

2) slope

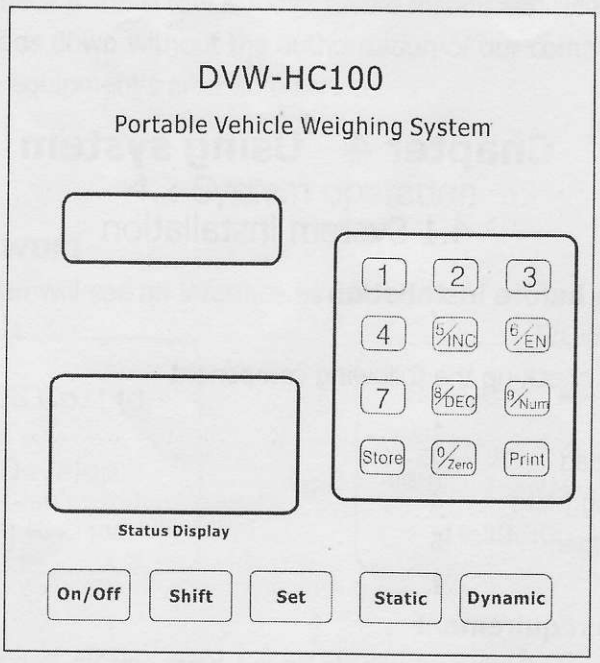
3) WDSI

4) cable



1-Wheel Pad 2-Slope 3-WDSI 4-Cable

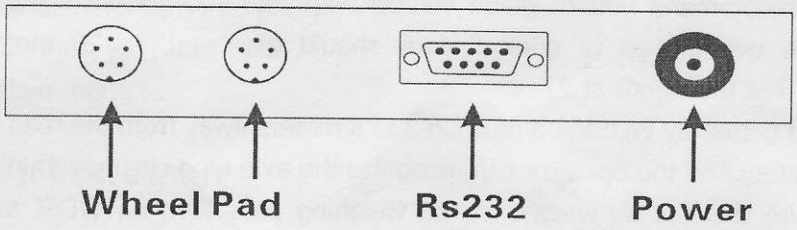
3.2 WDSI



Key instruction

1) 0~9: digital key, '0' means clearing to zero in weighing status. '5' means increasing in parameter setting, and '8' means decreasing in parameter setting. '6' means switching to English character input, and '9' means switching to number input.
2) On/Off: power on or power off
3) Set: while in parameter setting, 'Set' means entering or confirming & saving
4) Shift: shift to the secondary function of the combinational function key
5) Store: store calibration data while in calibration process, move cursor while inputting operator, customer name or cargo no.
6) Static: switch to static mode
7) Dynamic: switch to dynamic mode
8) Print: combined with 'shift' key, you can find measuring records. On the other hand, 'Print' key means confirming & saving while input operator, customer name or cargo no.

3.3 Connector on rear pannel



a) RS232 port: connected to computer
b) Power port: connected to special power adapter
c) Load cell connection

Chapter 4 Using system

4.1 System installation

4.1.1 Preparation before installation

★ Charge up WDSI.
★ Ensure and check up the following component

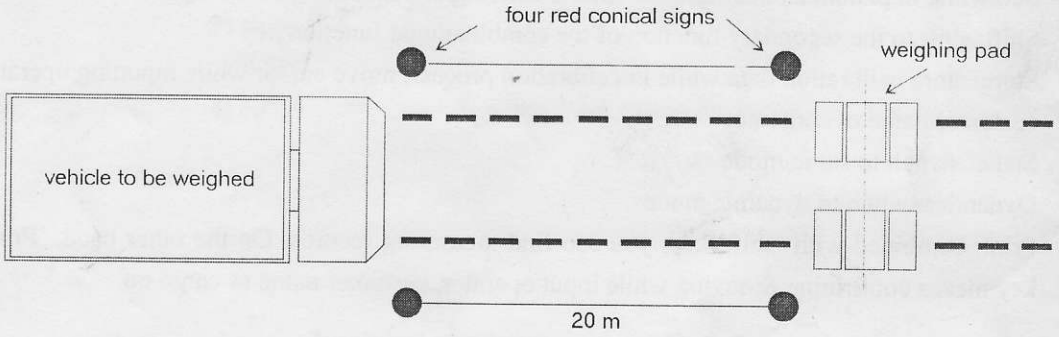
1) WDSI	1
2) Weigh pad	2
3) Directing plate	4
4) Print paper	5
5) Ribbon	1

4.1.2 Installation requirement

The pavement evenness and vehicle speed have certain impact on accuracy of the system.So you should take the following aspects into consideration when installing.

1) You should select a position on the right side of the road,also with a good pavement evenness and fine extensive views.A slope is an unadvisable choice.

2) You should adjust the distance between the two weighing pads according to the vehicle to be weighed.For detail information ,see the following figure.



3) Compact two weighing pads and make sure there is no space between the weighing pads and ground.

4) We recommend you to guide vehicle with four red conical signs.The distance between the two groups of conical signs should greater than 20 meters.For detail information ,see the figure at 2).

5) You'd better lay WDSI at a position 3 to 5 meters away from the road to ensure the operator's safety.And the operator can recognize the axle type clearly within this distance.

6) Ensure there is no weight on the weighing pads.Turn on WDSI and wait for a moment,then WDSI will show as the following figure.

4.1.3 Matters need attention for installation

1) The installation site should avoid the downtown area for safeguard use security.

2) You should check if the screw is loose before installation. It is not allowed to strip WDSI or weighing pads down without the authorization of our company,otherwise we will no longer undertake equipment's after-sale service.

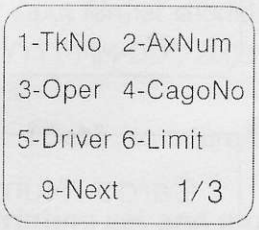
4.2 System operation

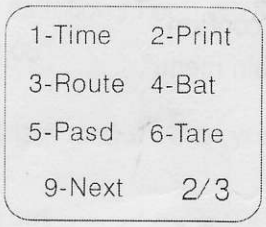
4.2.1. Starting up WDSI

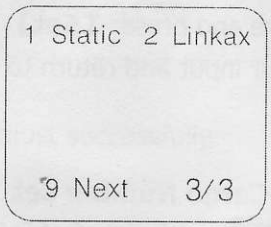
Turn on WDSI,you will see an interface as follows first.

4.2.2 Main menu

When in static weighing mode,press **【Set】** then you will see an interface as follows,and then press **【9】**you will see the other two interfaces.We called these interfaces "Main menu".

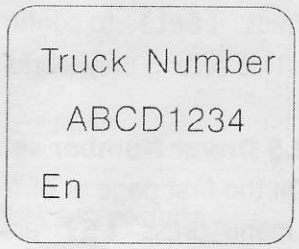






4.2.2.1 Truck number set (vehicle identification number,or license plate number)

On the first page of of "Main menu",press **【1】** and then select **【TkNo】**,you will see an interface as follows.Vehicle number is composed of letter and digit.Press **【Shift】** and **【6】** at the same time to switch to digit inputting mode when you need input a digit,if you want to return to letter inputting mode,please press **【Shift】** and **【9】** at the same time.You can input a truck number here and press **【Set】** to confirm your input and return to "Main menu".



Note

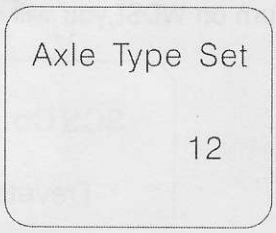
1) How to input a letter?

ROW/COL	1	2	3	4	5	6	7

1	A	B	C	D	E	F	
2	G	H	I	J	K	L	
3	M	N	O	P	Q	R	S
4	T	U	V	W	X	Y	Z

Example1:If you want to input "A",input "11".
Example2:If you want to input "K",input "25".

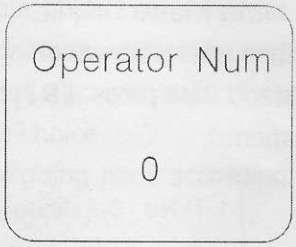
4.2.2.2 Axle type set



On the first page of of "Main menu", press 【2】 and then select 【**AxType**】, you will see an interface as follows.You can input an axle type here and press 【**Set**】 to confirm your input and return to "Main menu".

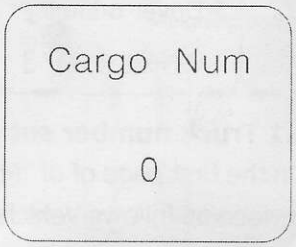
For more information about axle type and its input method,see appendix 2.

4.2.2.3 Operator Number set



On the first page of of "Main menu", press 【3】 and then select 【**Oper**】, you will see an interface as follows. You can input an operator number here and press 【**Set**】 to confirm your input and return to "Main menu".

4.2.2.4 Cargo Number set

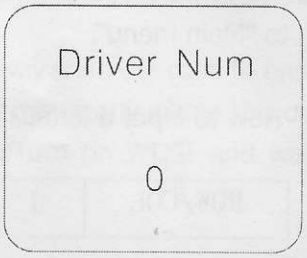


On the first page of of "Main menu", press 【4】 and then select 【**CagoNo**】, you will see an interface as follows. You can input a cargo number according to practical situation.

Press 【**Set**】 to confirm your input and return to "Main menu".

Note: This setting only works in **static weighing mode**.

4.2.2.5 Driver Number set

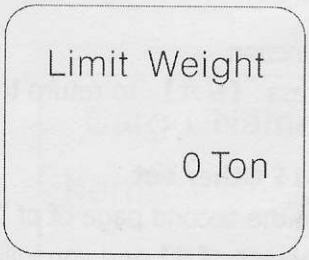


On the first page of of "Main menu",press 【5】 and then select 【**Driver**】,you will see an interface as follows. You can input a driver number here and press 【**Set**】 to confirm your input and return to "Main menu".

Note: This setting only works in **static weigh mode**.

4.2.2.6 Limit weight set

On the first page of of "Main menu", press 【6】 and then select 【**Limit**】, you will see an interface as follows. Input a number according to relevant local laws and regulations.The maximal number you are allowed to input is 99.The weight unit is ton.



Press 【**Set**】 to confirm your input and return to "Main menu".

Note: When on the first page of of "Main menu",you can press 【**9**】 to switch to the the next page of "Main menu" and then you can set other parameters.

4.2.2.7 Time set

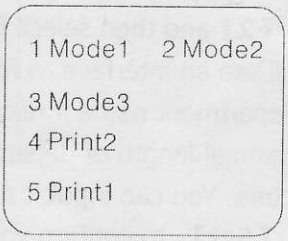
On the second page of of "Main menu", press 【**1**】 and then select 【**Time**】,you will see an interface as follows.Adjustment operation isn't needed if the current time is correct,if not,you can input correct time according to the cursor tips.Your input format should be as follows.For example,"YYYY-MM-DD","2008-09-08".

Press 【**Set**】 to return to "Main menu" when you adjust successfully.

4.2.2.8 Printing set and mode set

On the second page of of "Main menu",press 【**2**】 and then select 【**Print**】,you will see an interface as follows. Press 【**1**】 to select the work mode of 【**Mode1**】 and press 【**2**】 to select the work mode of 【**Mode2**】.

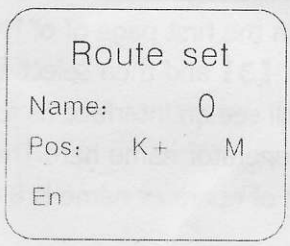
If you press 【**4**】 to select 【**Print2**】, then the printer will print 2 copies of report for you.Otherwise,press 【**5**】 to select 【**Print1**】 if you only want to print 1 copy.



Press 【**Set**】 to return to "Main menu" when you adjust successfully.

4.2.2.9 Route set

On the second page of of "Main menu", press 【**3**】 and then select 【**Route**】, you will see an interface as follows.You can input the route(Road Name) and position according



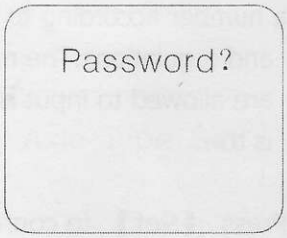
to practical situation.
Press 【**Set**】 to confirm your input and return to "Main menu".

4.2.2.10 Inquiry of dump energy

NO function
Press 【**Set**】 to return to "Main menu".

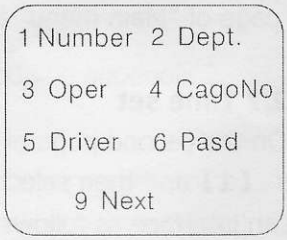
4.2.2.11 Other set

On the second page of of "Main menu",press 【**5**】 and you will see an interface as follows.



You should input your correct password if you or other people have modified the default password.Or you only need to input the default password "12345".

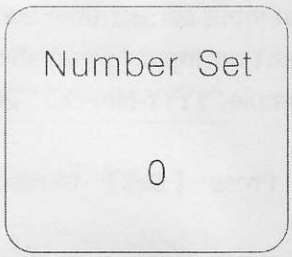
When a correct password have been input,an interface as follows will be shown.



(1) Number set

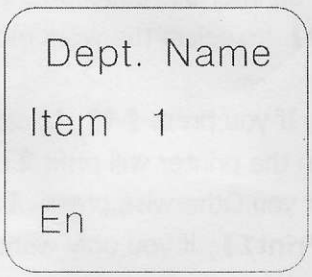
On the first page of of "Main menu", press 【**1**】 and then select 【**Number**】 ,you will see an interface as follows.Input new serial number if necessary,or you can remain the default number.

Press 【**Set**】 to confirm your input.



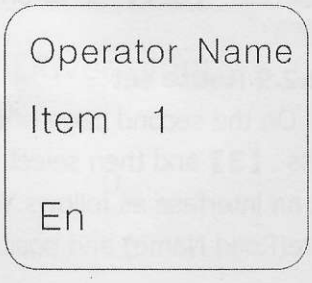
(2) Department name set

On the first page of of "Main menu", press 【**2**】 and then select 【**Dept.**】, you will see an interface as follows.Input your department name if necessary. The maximal length of department is 18 characters. You can input it according to appendix 3, Press 【**Set**】 to confirm your input.



(3)Operator name set

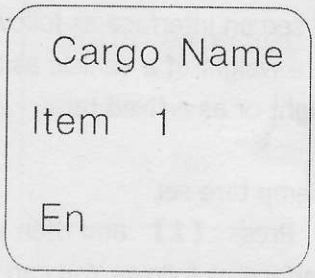
On the first page of of "Main menu", press 【**3**】 and then select 【**Oper**】, you will see an interface as follows.You can input operator name here.The maximal length of operator name is 8 characters.



You can input it according to appendix 3.
Press 【**Save**】 to move the cursor to the next input position and press 【**Print**】 to start inputting the next operator name.
Press 【**Set**】 to confirm your input.

(4) Cargo name set

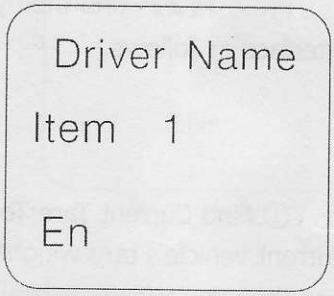
On the first page of of "Main menu", press 【**4**】 and then select 【**CagoNo**】, you will see an interface as follows.You can input cargo name here.The maximal length is 12 characters. You can input it according to appendix 3. Press 【**Save**】 to move the cursor to the next input position and press 【**Print**】 to start inputting the next cargo name.The memory system of WDSI can accommodate up to 99 records.



Press 【**Set**】 to confirm your input.

(5) Driver Name set

On the first page of of "Main menu", press 【**5**】 and then select 【**Driver**】, you will see an interface as follows.You can input customer name here.The maximal length is 12 characters. You can input it according to appendix 3. Press 【**Save**】 to move the cursor to the next input position and press 【**Print**】 to start inputting the next driver name.The memory system of WDSI can accommodate up to 99 records.

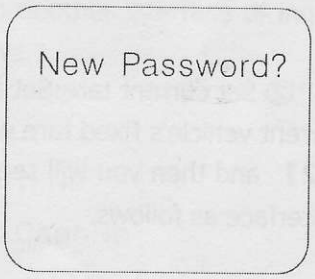


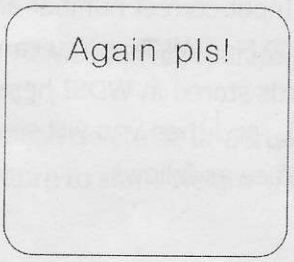
Press 【**Set**】 to confirm your input.

(6) Password set

On the first page of of "Main menu", press 【**6**】 and then select 【**Pasd**】, you will see an interface as follows.

You can set and modify your password here.The length of password is 5 characters.Input your new password here first.You should retype your password to confirm when new password was input completely.





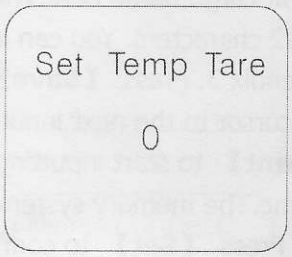
Press 【**Set**】 to confirm your input and return to "Main menu".
Note: The default password is "**12345**" .

4.2.2.12 Tare weight set

On the second page of of "Main menu", press 【**6**】 and then select 【**Tare**】,you will see an interface as follows.You can set the tare weight of a vehicle as a temporary tare weight or as a fixed tare.

1)Temp tare set

Press 【**1**】 and then you will see an interface as follows.You can input a number as current vehicle's temporary tare. Press 【**Set**】 to confirm your input.

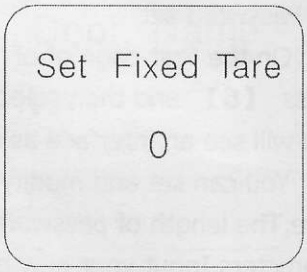


2)Fixed tare set

Press 【**2**】 and then you will see an interface as follows.

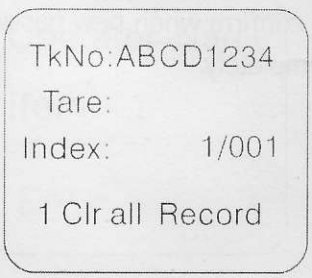
① Find Current Tare:To observe the current vehicle's tare weight.Press 【**1**】 and then you will see a similar interface as follows.

② Set current tare:Set a number as current vehicle's fixed tare weight. Press 【**2**】 and then you will see a similar interface as follows.



Input correct number and press 【**Set**】 to confirm your input.

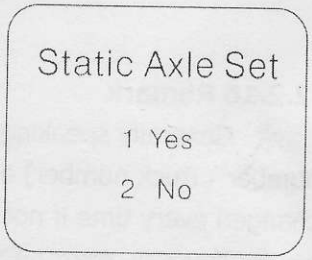
③ Find All Tare:You can scan all records stored in WDSI here. Press 【**3**】 and then you will see a similar interface as follows.



Note: This setting only works in **static weigh mode**.

4.2.2.13 Axle type set of static weigh mode

On the third page of of "Main menu", press 【1】 and then select 【**Static**】, you will see an interface as follows.You can choose whether or not to set axle type in static weigh mode. You can press 【1】 to choose it or press 【2】 to deny.

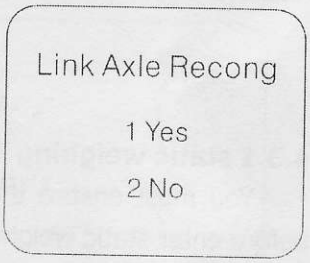


Press 【**Set**】 to confirm your input and return to "Main menu".

Note: This setting only works in **static weigh mode**.

4.2.2.14 Link axle recognition set

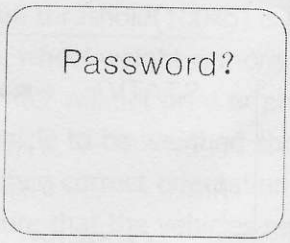
On the third page of of "Main menu", press 【2】 and then select 【**LinkAx**】, you will see an interface as follows.You can choose whether or not to use the function of link axle automatic recognition. You can press 【1】 to choose it or press 【2】 to deny.

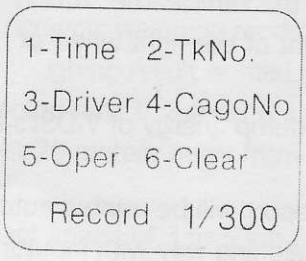


Press 【**Set**】 to confirm your input and return to "Main menu".

4.2.2.15 Weighing records inquiry

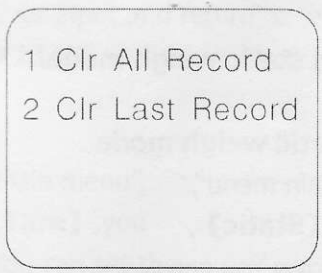
Press 【**Shift**】 and 【**Print**】 at the same time,then it will show"Password" in the interface.After you enter the pass words,then it will turn to another interface of inquiry. static weighing mode then you will see an interface as follows.





You can inquire records you wanted by time,truck number,driver,operator,cargo number and so on.It will return all records if you press 【**Set**】.

Press 【**6**】 and you will see an interface as follows,you can delete all or parts of the records. Press 【**Shift**】 and 【**Print**】 at the same time to return to static weighing mode.



4.2.2.16 Remark

★ Generally speaking,on "Main menu" page,you only need to change "license plate number"(Truck number) and "axle type" frequently.The other settings are not need to be changed every time if not necessary..

★ You can press **【Set】** to return to "Main menu" at any time when you are operating the above setting option.

★ Password is need when you operate setting options such as "Number set","Department name set","Operator name set","Cargo name set","Driver name set" and "Password set".

4.3 Static Weighing

4.3.1 static weighing

You must ensure that the following four aspects of the work has been completed before enter static weighing mode.

1 WDSI is OK.

2 You have input "license plate number","Cargo name" and "Driver name" correctly.(Note: "Cargo name" and "Driver name" is optional.)

3 Tare weight has been set.

4 You should ensure the axle type have been set if you select a weighing way with inputting alxe type.

WDSI will show as follows if you have completed the above setting.

● The "LEFT" value is the weight of the left wheel of the vehicle.The "RIGHT" value is the weight of the right wheel of the vehicle.

● It is the dump energy of WDSI's battery.

A weighing report will be printed automatically if you select a weighing way with inputting alxe type and the axle number of the vehicle is equal to the axle number you set.On the contrary, every time a axle's weight has been weighed,you must press **【Save】**. In such circumstances WDSI will calculate the total weight automatically according to every axle's weight. Press **【Print】** when all axles have been weighed and a weighing report will printed for you automatically.

4.4 Dynamic Weighing

4.4.1 dynamic weighing

You must ensure that the following four aspects of the work has been completed before enter dynamic weighing mode.

1 WDSI works well in static weighing mode.

2 You have input "license plate number" correctly.

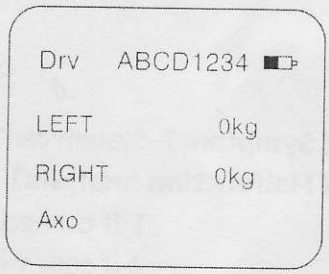
3 The axle type and the Load Limit have been set correctly.

4 A proper work mode has been selected.

Note:

▲ You can press **【Dynamic】** to enter Dynamic weighing mode if you are in static weighing mode or "Main menu".

WDSI will show as follows if it is in Dynamic weighing mode.



●The "LEFT" value is the weight of the left wheel of the vehicle.The "RIGHT" value is the weight of the right wheel of the vehicle.

●Axle number indicates the number of the vehicle to be weighed.

● It is the dump energy of WDSI's battery.

A weighing report will printed for you automatically when the axle number displayed is equal to the axle number of the vehicle being weighed.

4.4.2 Printing report

To view the report format,see Appendix 1.The printer will stop printing and it's red light will be on if it has run out of paper.

4.4.3 Matters need attention

1 A default threshold(100kg) is set for WDSI in dynamic weighing mode,that is to say,only when the wheel weight is more than 100kg,the weighing result is valid.

2 The printer will not print or print at an unexpected time if you set a wrong axle type.

3 The vehicle to be weighed should keep at least 20 meters away from the weighing pad and maintain correct orientation.

4 Make sure that the vehicles remain at a constant speed of 3 to 5 km / h.

5 To prevent weighing pad and bridge approach from being damage,braking when the vehicle is on the weighing pads is absolutely prohibited.

Chapter 5 System maintenance

5.1 Matters need attention

1 Turn on WDSI once a month, each time 8 hours,when it is not used for a long period of time.You should recharge at least 8 hours to protect the built-in battery when the battery level is low.

2 It is prohibited to use the WDSI at rainly or corrosive environment.It is should be lain in a shelter when in the hot sun. For underground installation mode, the pit to be lay weighing pad should keep dry.

3 You should check the accuracy of the system regularly.

4 Pay attention to the printer's work status and add or replace printing paper and ribbons timely if necessary.

5 You should install the manostat equipment if you are in an area with an unstable power supply.

6 You should check if the screw is loose before and after each use.

7 You should clean all of the debris, moisture, dirt on the weighing pad after each use.It is not allowed to use wet cloth or corrosive solution when clean the pad.Make sure the equipment is dry before it is boxed.

8 When carrying,you must be carefully handled.

5.2 Malfunction analysis

★【**Symptom**】 System can't weigh or the printed result is a little lighter.

【**Malfunction analysis**】

1 If connection between WDSI and weighing pad is normal.

2 If staic weighing normal.

★【**Symptom**】 The printer can't print or print with a low quality(lack of definition).

【**Malfunction analysis**】

1 The ribbon gets very heavy wear.

2 The ribbon is lack of ink.

3 The ribbon is not in a proper position.

4 A wrong axle type was set.

5 No printing paper.

【**Solution**】

1 Replace the ribbon.

2 Take out the ribbon and drop a drop of blue ink to it,then rotate it to distribute the ink evenly,install the ribbon to retry.

3 Reinstall the ribbon correctly.

4 Retype correct axle type.

5 Add enough printing papers to the printer.

★【**Symptom**】 WDSI don't work with beep.

【**Malfunction analysis**】

The battery level is low,you should recharge.

★【**Symptom**】 If you encounter any other problems you can't solve,please contact us as quickly as you can and don't repair by yourself.

5.3 After-sale services

Generally speaking, after-sales service commitments have been specified in the contract.We will responsible for maintaining if the problem is due to the quality issue of the product itself within a year.Otherwise,warranty does not apply under the following circumstances:the operator or the driver's faulty operation,any other unexpected reason.

Because WDSI has adopted a series of new technologies,we don't advocate maintaining our product by yourself based on technical reasons of confidentiality. Once our product break down,you should contact us as soon as possible.We will give technical guidance to you,and we will dispatch technician timely if necessary.

It is not allowed to strip WDSI or weighing pads down without the authorization of our company,otherwise we will no longer undertake equipment's after-sale service.

If equipment's function or parameters have new improvements, we will give further notice.

Axle Load Bill

SN: 000003

Date: 2007/09/15

Time: 17:26

Truck No.: ABC01234

Speed: 2.49km/h

Inspector:

Driver:

Total:	57580kg
Rating:	20000kg
OverLoad:	37580kg

AxNo.	Type	Weight
1		31040kg
2		26540kg

HighWay:

K+ M

Axle Load Bill

SN: 000002

Date: 2007/09/15

Time: 17:26

Truck No.: ABC01234

Speed: 2.49km/h

Total:	17190kg
Rating:	20000kg
OverLoad:	0kg

Inspector:

Driver:

Axle Load Bill

SN: 000002

Date: 2007/09/15

Time: 17:26

Truck No.: ABC01234

Speed: 2.49km/h

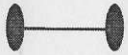
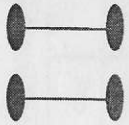
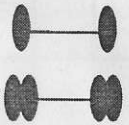
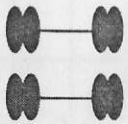
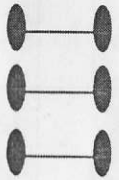
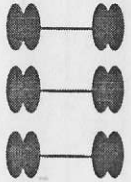
Total:	55530kg
Rating:	20000kg
OverLoad:	177%

Inspector:

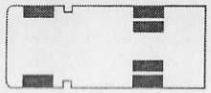
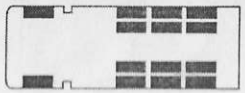
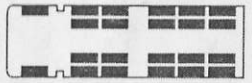
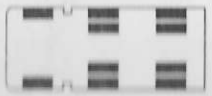
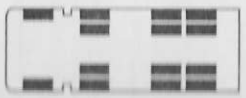
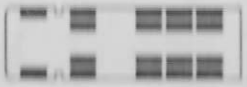
Driver:

Appendix 2 Common vehicle type and axis code

Axle Type Comparison Chart

Axle type	Single axle, single wheel on either side	Single axle, double wheels on either side	Two joint axles , single wheel on each side	Two joint axles, a single-wheel and a double-wheel on each side	Two joint axles, double wheels on each side	Three joint axles, single wheel on each side	Three joint axles, double wheels on each side
Number of axle type	1	2	3	4	5	6	7
Illustration							

Vehivle Type

 Input code Birdeye view of vehicle 12	 Input code Birdeye view of vehicle 17	 Input code Birdeye view of vehicle 157
 Input code Birdeye view of vehicle 122	 Input code Birdeye view of vehicle 125	 Input code Birdeye view of vehicle 1511
 Input code Birdeye view of vehicle 15	 Input code Birdeye view of vehicle 127	

Appendix 3 ASCII Table

char	dec	char	dec	char	dec	char	dec	char	dec	char	dec
32		0	48	@	64	P	80	↓	96	p	112
!	33	1	49	A	65	Q	81	a	97	q	113
"	34	2	50	B	66	R	82	b	98	r	114
#	35	3	51	C	67	S	83	c	99	s	115
$	36	4	52	D	68	T	84	d	100	t	116
%	37	5	53	E	69	U	85	e	101	u	117
&	38	6	54	F	70	V	86	f	102	v	118
'	39	7	55	G	71	W	87	g	103	w	119
(	40	8	56	H	72	X	88	h	104	x	120
)	41	9	57	I	73	Y	89	i	105	y	121
*	42	:	58	J	74	Z	90	j	106	z	122
+	43	;	59	K	75	[	91	k	107	{	123
,	44	<	60	L	76	\	92	l	108	|	124
-	45	=	61	M	77	]	93	m	109	}	125
.	46	>	62	N	78	↑	94	n	110	~	126
/	47	?	63	O	79	←	95	o	111	△	127