BATTERY CHARGER RESELLERS GUIDE

TERMINOLOGY & QUESTIONS TO ASK

ALL OF THE DATA CONTAINED IN THIS BOOKLET IS FOR INFORMATION ONLY – REFERENCE SHOULD ALWAYS BE MADE TO THE MANUFACTURERS SPECIFICATION AND INSTRUCTIONS.

*SPECIFICATIONS CAN BE CHANGED AT ANY TIME – REFER TO TELWIN.

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1. TERMINOLOGY

BOOST

The term "boost" on Telwin battery chargers means…

A: The charger will warm a charged, but "cold" battery in severe weather conditions, such as frost or snow. Periods of 10-20mins are usually ample.

B: The charger will quick charge a battery that is flat or semi-flat. Telwin recommends a maximum time of one-hour for the battery to be boosted, to enable engine starting and not damage the battery. If after one-hour sufficient charging is not achieved, return to normal charge. In most cases this would not be necessary, and at 30mins it is advisable to attempt to start the engine once. If it doesn't start continue to one-hour.

NB 1: The charger must not be attached to the engine during starting.

NB 2: Boost can be used for quick charging, BUT it will shorten battery life!

Typical Telwin battery chargers with engine boost are …

- Nevaboost 100, Nevaboost 140, Autotronic 25
- Plus all Leader series and Dynamic series

ENGINE START

This applies to crank starting a totally flat or near flat battery.

Procedure is … put battery charger of "*MAX CHARGE*" for approx 10 minutes and then switch to *CRANK START*.

Typical Telwin battery chargers with engine start are …

- Leader 220 & 400, Dynamic 320, 520 & 620

MONITOR

This means holding a battery to its existing level of charge. It does **NOT** mean that it will charge a flat battery. It does **NOT** mean it will engine boost or engine start. It does mean that, for instance, a boat battery can be left on a monitor charge for an extended period of weeks or months.

AMP HOURS

Amp hours refer to the size of the battery. It is the information that is required in order to correctly assess the battery charger required for particular applications.

CHARGE CONTINUOUS

The average charge per hour put into a battery over a 10 hour period. I.e. a Nevada 14 puts a continuous charge of 6amp into a battery and over a 10 hour period, it will produce 60 amps

CHARGE MAXIMUM

This is the maximum number of amps that the charge can produce

2. TELWIN BATTERY CHARGER RANGE

BATTERY CHARGER RANGE …

(a)	Nevada	-	for charging small batteries
(b)	Nevaboost Series	-	for charging and boost assist
(c)	Nevatronic Series	-	for monitoring **only**
(d)	Autotronic 25	-	charges, monitors and boost assist
(e)	Leader Series	-	engine start
			and
	Dynamic Series	-	charging large batteries
(f)	Startronic Series	-	Car dealer Workshop usage

3. QUESTIONS

1. ***What type of vehicle?***
   i.e. motor bike, go kart, car, truck, haul pack

2. ***Is it 6 volt?***
   12 volt?
   24 volt?
   Therefore look at the charger specifications.

3. ***How many amp hours in Battery***?
   This is important to know

4. ***Do you want to engine start the vehicle?***
   or
   Do you want to hold or "monitor" a current level of charge?
   There are different chargers for each type of these applications
   viz Engine start Battery Chargers
   Leader 220 & 400
   Dynamic 320, 520 & 620
   and Monitor
   Nevatronic 12 & 24
   PLUS
   Autotronic 25

5. ***Is it a vehicle such as a boat, go cart, motor cycle? i.e. a vehicle used infrequently***

If so, then you may need a charger which MONITORS only, the charge over an extended time i.e. weeks or months

NOTE: The monitor chargers i.e. Nevatronic 12 & 24, will **NOT** bring a near flat or totally flat battery up to charge.

The Nevatronic 12 and 24 are the only "chargers" that hold the charge to its current level.

6. ***How long should I charge my Battery?***

For correct charging of a battery, charging should always be done over a 10 – 14 hour period. Therefore, find out the amp hours of the battery, then look at the continuous charging amps of the battery charge and assess what is needed
i.e. a car battery with a 100 Amp hours will need a charger which can deliver 10 amp on continuous charge
viz … Nevaboost 140 has a continuous charge of 13 Amp and is suitable for batteries 10AH to 200 AH

7. ***Does the client want a battery charger that will assist the start or start a vehicle?***

If so, then you need to look for a "engine boost" or "engine start" charger

These include …
- Nevaboost 100
- Nevaboost 140
- Autotronic 25

} These are Engine Boost – refer terminology

and
- Leader 220
- Leader 400
- Dynamic 320
- Dynamic 520
- Dyanamic 620

} These are Engine Start

Again, look at the amp hours of the battery and then the "continuous charging" of the various Telwin models, shown above, and make a selection.

If running the charger off a generator, then the two figures shown under "Power" in the specifications should be read as follows …

Viz. Leader 400 shows - Power KW 1/6.4

The "1" means the minimum power required from the generator for charging, and the "6.4" means the minimum power required from the generator for engine starting.

4. PLUG SIZE ON BATTERY CHARGERS

As you will see, the Telwin range of battery chargers has both 10 amp and 15 amp plugs, and obviously, you need to recommend correctly for each application.

5. FUSES

There are two fuses on every battery charger.

(1) The external fuse is located on the outside of the box – this covers the power coming into the charger.

(2) The internal fuse can be located either inside the charger casing, in which case it is only to be changed by a qualified electrician, or electrical repairer, or the Telwin Warranty repairer,

OR,

it is located on the front of the box in a screw in bayonet plastic fuse holders.

This is applicable to the …

- Nevaboost 140
- Autotronic 25

TELWIN BATTERY CHARGERS
FUSE PARTS LIST

NEVADA 6

External	Fuse	TW802264
	Size	4 amp
	Type	Push in Blade Type
	Qty	Sold in packs of 10
Internal	Fuse	TW122760
	Size	1.5 amp
	Type	Glass Fuse
	Qty	Individual

NEVADA 11

External	Fuse	TW802265
	Size	7.5 amp
	Type	Push in Blade Type
	Qty	Sold in Packs of 10
Internal	Fuse	TW122760
	Size	1.5amp
	Type	Glass Fuse
	Qty	Individual

NEVADA 14

	External	Fuse	TW802255
		Size	15 amp
		Type	Push in Blade Type
		Qty	Sold in Packs of 10
	Internal	Fuse	TW122433
		Size	1 amp
		Type	Glass Fuse
		Qty	Individual

NEVADA 15

	External	Fuse	TW802255
		Size	10 amp
		Type	Push in Blade Type
		Qty	Sold in Packs of 10
	Internal	Fuse	TW122735
		Size	10 amp
		Type	Glass Fuse
		Qty	Individual

NEVABOOST 100

	External	Fuse	TW802256
		Size	15 amp
		Type	Push in Blade Type
		Qty	Sold in Packs of 10
	External	Fuse	TW122433
		Size	1 amp
		Type	Glass Fuse
		Qty	Individual

NEVABOOST 140

	External	Fuse	TW802114
		Size	30 amp
		Type	Push in Blade Type
		Qty	Sold in Packs of 10
*	Internal	Fuse	TW500001
		Size	2.5 amp
		Type	Slow Blow Glass fuse
		Qty	Individual

* Located on front of outside of box – screw in bayonet holder

NEVATRONIC 12

	External	Fuse	TW802256
		Size	15 amp
		Type	Push in Blade Type
		Qty	Sold in packs of 10
	Internal	Fuse	TW122433
		Size	1 amp
		Type	Glass Type
		Qty	Individual

NEVATRONIC 24

	External	Fuse	TW802256
		Size	15 amp
		Type	Push in Blade Type
		Qty	Sold in packs of 10
	Internal	Fuse	TW122433
		Size	1 amp
		Type	Glass Type
		Qty	Individual

AUTOTRONIC 25

	External	Fuse	TW802257
		Size	20 amp
		Type	Push in Blade Type
		Qty	Sold in Packs 10
*	Internal	Fuse	TW500001
		Size	2.5 amp
		Type	Slow Blow Glass Fuse
		Qty	Individual

* Located on front of outside of box – screw in bayonet holder

LEADER 210

	External	Fuse	TW802260
		Size	80 amp
		Type	Flat Metal Fusible Link
		Qty	Sold in packs of 20 off

LEADER 220 ** All external fuses

	External	Fuse	TW
		Size	30 amp (x2)
		Type	Flat Metal Fusible Link
		Qty	Sold in packs of 20 off
	External	Fuse	TW
		Size	6.3 amp
		Type	Glass Fuse
		Qty	Individual

LEADER 400

	External	Fuse	TW802259
		Size	50 amp
		Type	Flat metal Fusible Link
		Qty	Sold in packs of 20 off

DYNAMIC 320

	External	Fuse	TW802259
		Size	50 amp
		Type	Flat Metal Fusible Link
		Qty	Sold in packs of 20 off

DYNAMIC 520

External	Fuse	TW802260
	Size	80 amp
	Type	Flat Metal Fusible Link
	Qty	Sold in Packs of 20 off

DYNAMIC 620

External	Fuse	TW802029
	Size	100 amp
	Type	Flat metal Fusible Link
	Qty	Sold in packs of 20 off

STARTRONIC 500

External	Fuse	TW122760
	Size	1.5 amp
	Type	Glass Fuse
	Qty	10
Internal	Fuse	TW122450
	Size	
	Type	Glass Type
	Qty	Individually
Internal	Fuse	TW122841
	Size	10 amp
	Type	Glass Type
	Qty	Individual

TELWIN BATTERY CHARGER – FUSE PARTS LISTING

Model		*Push in Blade Type*				*Glass Fuse*				*Flat Metal Fusible Link*				*Screw in Bayonet Holder Glass Fuse*			
		Part No.	*Size (amp)*	*Type Location on machine*	*Pack Qty*	*Part No.*	*Size (amp)*	*Type Location on machine*	*Pack Qty*	*Part No.*	*Size (amp)*	*Type Location on machine*	*Pack Qty*	*Part No.*	*Size (amp)*	*Type Location on machine*	*Pack Qty*
Nevada	6	TW802264	4	Outside	10	TW122760	1.5	Inside	1								
	11	TW802265	7.5	Outside	10	TW122760	1.5	Inside	1								
	14	TW802255	10	Outside	10	TW122433	1.0	Inside	1								
	15	TW802255	10	Outside	10	TW122735	10	Inside	1								
Nevaboost	100	TW802256	15	Outside	10	TW122433	1.0	Inside	1								
	140	TW802114	30	Outside	10									TW500001	2.5 slow blow	Front outside	1
Nevatronic	12	TW802256	15	Outside	10	TW122433	1.0	Inside	1								
	24	TW802256	15	Outside	10	TW122433	1.0	Inside	1								
Autotronic	25	TW802257	20	Outside	10									TW500001	2.5 slow blow	Front outside	1
Leader	210									TW802260	80	Front Outside	20				
	220									TW802260	80	Front Outside	20				
	400									TW802259	50	Front Outside	20				
Dynamic	320									TW802259	50	Front Outside	20				
	520									TW802260	80	Front Outside	20				
	620									TW802029	100	Front Outside	20				
Startronic	500																

DOS & DON'TS

1. ***Do not touch the battery charger leads together***
   - THIS WILL BLOW THE FUSES

2. ***Do not switch from 12v to 24v when connected to a 12 volt battery***
   - THIS WILL BLOW THE FUSE

3. ***Do not switch from 12V to 24V when charging a 24V battery, when charger is connected to the mains. Turn off at mains first, otherwise you will cause damage to the switch.***

4. ***Always connect correct lead colours to the "+ve" and "-ve" on the battery.***
   i.e. red clamp to "+ve" and black clamp to "-ve"

5. ***Plus all Safety considerations shown under "Instruction Manual"***

REFER TO ATTACHED "NOTE #10 INSTRUCTION MANUAL" ON PAGE 16

WARRANTY

Limited 12 months warranty applies against manufacturing faults, refer to White Int. Published Conditions of Sale for further details

6. COLD CRANKING AMPS (CCA) Versus AMP HOURS (AH)

Cold Cranking AMPS (CCA)	AMP Hours (AH)	Maximum Charge AMPS	Battery Charger
280	**45**	**4.5**	**Nevada 6, 11**
380	**75**	**7.5**	**Nevada 14,15**
440	**95**	**9.5**	**Nevada 14,15** **Nevaboost 100**
550	**105**	**10.5**	**Nevaboost 100, 140** **Autotronic 25**
600	**135**	**13.5**	**Autotronic 25** **Leader 210, 400**
850	**200**	**20.0**	**Leader 210, 400** **Startronic**

NOTE

1. Chargers as listed can be used on CCA batteries as shown.

2. Each Charger can also be used on lower CCA rating batteries i.e. Nevada 14 can be used on 380 and lower 280 CCA

3. But a Nevada 14 cannot be used on CCA rating above 380.

* SOURCE: Chloride Batteries

7. *RC RATING DEFINITION

A POSITIVE IDENTIFICATION OF AMP HOURS (AH) ON COLD CRANKING AMP (CCA) RATED BATTERIES, CAN BE OBTAINED BY REFERRING TO THE RC RATING.

THE "RC RATING" REFERS TO THE TIME FOR WHICH A BATTERY WILL DELIVER 25 AMPS, FROM FULLY CHARGED TO FLAT.

THIS RATING IS USEFUL FOR TWO REASONS …

(1) FIRSTLY, IT TELLS THE VEHICLE OWNER, THAT IF HIS ALTERNATOR FAILS, HE HAS A KNOWN NUMBER OF MINUTES THAT HE CAN DRIVE THE AVERAGE VEHICLE WITH THE HEADLIGHTS ON, BEFORE IT WILL CEASE OPERATION.

(2) SECONDLY, ALSO BY MULTIPLYING THE "RC RATING " BY 0.6, THE ACTUAL AMP HOURS OF THE BATTERY CAN BE DETERMINED. THIS IS IMPORTANT IN DETERMINING THE TYPE AND SIZE OF BATTERY CHARGER THAT WILL BE REQUIRED FOR THE BATTERY.

I.E. N 70Z HAS A CCA RATING OF 520 AND
A "RC RATING" OF 110

THEREFORE,

RC = 110 MINUTES @ 25 AMPS DRAW
= 110 X 0.6
= 66 AMP HOUR
= 6.6 AMP
OPTIMUM CHARGE RATE

* "RC" RATING REFERS TO… RESERVE CAPACITY (MEASURED IN MINUTES)

8. CHARGING SELECTION BY REFERRING TO AUSTRALIAN *"RC" STANDARD FOR VEHICLE BATTERIES

*RC RATING	AMP HOURS (A/H)	TELWIN CHARGER	TELWIN "CHARGE & START" CHARGER
40	24	NEVADA 6	LEADER 220
50	30	NEVADA 11	LEADER 220
70	42	NEVADA 14/15	LEADER 220
85	50	NEVADA 14/15	LEADER 220
110	65	NEVADA 14/15	LEADER 400 DYNAMIC 320
130	80	NEVABOOST 100	LEADER 400 DYNAMIC 320
175	105	NEVABOOST 100	DYNAMIC 520
230	140	NEVABOOST 140	DYNAMIC 520
300	180	AUTOTRONIC 25	DYNAMIC 620
430	260	AUTOTRONIC 25	LIMIT

NOTE: 1. Each charger can also be used on lower "RC" rating batteries.

ie: Nevada 14 can be used on 70 and lower 50 "RC" rating batteries.

* "RC" refers to… Reserve Capacity (measured in minutes)

9. STARTRONIC BATTERY CONNECTION FOR BATTERIES WITH THE SAME DISCHARGE LEVEL

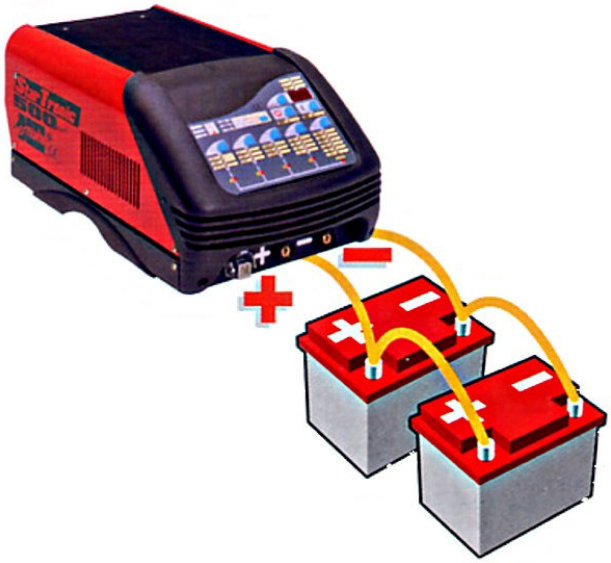
1. CONNECTING IN SERIES

Charge Voltage = Sum of each voltages

Batteries need to have the same capacity in Ah.

12v + 12v = 24v
70Ah 70Ah = 70Ah

2. CONNECTING IN PARALLEL



Batteries need to have the same voltage

Charge capacity = sum of each capacities.

12v 12v = 12v
40Ah + 45Ah = 85Ah

10. INSTRUCTION MANUALS – ALWAYS REFER TO THE MANUFACTURER'S INSTRUCTION MANUALS.

11. GENERAL INFORMATION

This battery charger is ideal for lead accumulators on petrol and diesel engines, motorcycles, boats etc.

The charging current delivered by the battery decreases according to the characteristic W bend – see the DIN41774 norm. The battery case has a protection degree of IP20 and is protected against indirect contacts by an earth lead as foreseen for class 1 equipment.

Check for available mains voltage to correspond to that reported on the front panel of battery charger. Check that plug has earth connection.

SAFETY

- During the charge the battery produces explosive gases, avoid the formation of flames and sparks. DO NOT SMOKE.
- Use the battery charger only indoors and make sure that you start it in airy places. DO NOT SET IN THE RAIN OR SNOW.
- Disconnect the mains cable before connecting to or disconnecting the charging cables from the battery.
- This battery charger has components such as switches and relays which can cause arcs or sparks. Therefore, when using it in a garage or in a similar place set the battery charger in a suitable case.
- Set the battery charger on a solid base. The models on wheels are to be set in a vertical position.
- Never use the battery charger inside the car or in the bonnet.
- Set the battery charger so as to provide adequate ventilation. Never cover the battery charger!
- Strictly follow the instructions of vehicles' manufacturers before using the battery charger.
- To ensure the protection against indirect contacts connect to an adequate plug with earth connection.
- Repair or maintenance of the inside of the battery charger can be executed only by skilled technicians.

- Substitute the mains cable only with an original one.
- Do not use the battery charger to charge batteries that are not rechargeable.
- In the models supplied without a plug connect a plug of capacity adequate to the value of the fuse indicated on the data table.

BEFORE CHARGING

NB: Before charging check that the capacity of the battery (Ah) which is to be charged, is not inferior to that reported on the data table (C min)

(1) Remove the caps of the battery charger (If foreseen) so as to let the gas produced go out. Check that the level of the electrolyte covers the plates of the battery. If these were not covered, add distilled water and cover them up to 5-10mm. Please remember that the correct charging status of the battery can be determined by using a densimeter which permits to measure the specific density of the electrolyte. The following density values (kgs/1 at 20C) are given as reference point:

1.28 = loaded battery
1.21 = half-loaded battery
1.14 = no loaded battery

WARNING: USE THE MAXIMUM CAUTION DURING THIS OPERATION, AS THE ELECTROLYTE IS A HIGHLY CORROSIVE ACID.

(2) When the mains cable is disconnected from the mains plug, set the charging switch 12/24 (if there is one) according to the nominal voltage of the battery and the setting switches.

(3) Connect the red clamp to the positive terminal (+) of the battery and the black clamp to the negative terminal (-). Connect the mains cable to the mains and set the switch in "ON" position. The ammeter of the battery charger will indicate the current delivered towards the battery (beginning of charge). During the charge the pointer of the ammeter will decrease slowly to the very lowest values according to the capacity and condition of the battery.

Once the battery is loaded you will note that the liquid inside the battery will start to boil. It is advisable to stop the charging when this phenomenon appears so as to avoid the oxidation of the plates and keep the battery in good conditions.

WARNING: LOW OR NO MAINTENANCE OF THE BATTERY.

In case you should charge with this kind of battery be most careful.. Charge slowly and keep on checking the voltage at the battery clamps. When the voltage reaches 14,4/28,8 volt (this can be easily detected by a normal tester) it is advisable to stop charging.

SIMULTANEOUS CHARGING OF MORE BATTERIES.

When more batteries are to be charged at the same time, the parallel or serial connections can be used. Between the two it is better to use the serial connection as in this way you can check the current passing in each battery, which is the same as the current signed by the ammeter.

NOTE: In case of serial connection of two batteries having nominal voltage 12v, it is advisable to set the 12/24 switch in 24v position.

END OF CHARGE

When charging is completed disconnect first the mains voltage by turning the switch in off position, and/or disconnect the mains cable from the mains plug. Then, disconnect the charging clamps from the battery terminals and put the battery charger in a dry place. Remember to reset the caps of the battery

PROTECTION

The battery charger is equipped with protection in case of:

- overloads (too much current delivered towards the battery)
- short circuit (charging clamps set in contact with one another)
- polarity reversal of the battery

For battery chargers equipped with fuses, it is necessary, in case of substitution of fuses, to use spares having the same nominal current value as the fuse changed.

WARNING: If fuses with current values different from those given were used damages to persons and things could be caused. For the same reason do not substitute the fuse with copper (or other materials) bridge. The substitution of the fuses is to be done when the mains cable is disconnected from the mains.

USEFUL ADVICE

- Execute the charge in airy places to avoid gas accumulation.
- Before charging open the cap of each element
- Check that the level of the internal liquid of the battery covers the plates. On the contrary, add distilled water up to the max. level indicated on the battery.

- Do not touch the liquid inside the battery: it is corrosive.

- Clean the positive and negative terminals of all possible oxidations so as to ensure a good contact of the clamps.

- Avoid the contact between the two clamps when the battery charger is switched 'ON'. If you do the fuse will clear.

- If the battery charger is used with a battery which is always connected to a vehicle, check the instruction and/or maintenance manual of the vehicle under the paragraph: "ELECTRIC PLANT" or "MAINTENANCE". Before charging it is advisable to disconnect the positive cable which is part of the electrical plant of the vehicle.

- Control the battery voltage before connecting it to the battery charger. Remember that 3 caps correspond to a 6volt battery, while 6 caps to a 12 volt battery. At times you may have two 12 volt batteries which are connected in series. In this case you need a 24v voltage to charge both accumulators.

- Check the polarity of both clamps: positive (+), negative (-). In case the symbols were not easily recognizable please remember tat the negative clamp is that connected directly to the case.

STARTING

- The starting of a machine by a starter is necessary when the accumulator/battery has not enough energy to make the starting motor rotate. In this case such energy can be obtained by the starter connected to the electrical mains by setting the starting/loading switch in "starting" position.

- Before starting check the instructions of vehicles' manufacturers carefully! **(START 3 Seconds ON, 120 Seconds OFF 5 CYCLES)** protect mains line with fuses or automatic switches of the same value as reported on the data table under the symbol. 

- **WARNING: The starting operation must follow strictly the cycles work/pause indicated on the starter and if the machine does not start do not go on: If you do the battery and even the whole electric plant of the machine could be injured. Before starting it is advisable to execute a quick charge for 10-15 minutes so as to make the starting of the machine easier.**

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