



Please dispose of packaging for the product in a responsible manner. It is suitable for recycling. Help to protect the environment, take the packaging to the local amenity tip and place into the appropriate recycling bin.



Never dispose of electrical equipment or batteries in with your domestic waste. If your supplier offers a disposal facility please use it or alternatively use a recognised re-cycling agent. This will allow the recycling of raw materials and help protect the environment.



Startmaster PW520-PWT1400

Starter / Charger



05534 - 05538

FOR HELP OR ADVISE ON THIS PRODUCT PLEASE CONTACT YOUR DISTRIBUTOR,
OR SIP DIRECTLY ON:
TEL: 01509500400
EMAIL: sales@sip-group.com or technical@sip-group.com
www.sip-group.com

Please read and fully understand the instructions in
this manual before operation. Keep this manual
safe for future reference

DECLARATION OF CONFORMITY

Declaration of Conformity

We

SIP (Industrial Products) Ltd
Gelders Hall Road
Shepshed
Loughborough
Leicestershire
LE12 9NH
England

As the manufacturer's authorised representative within the EC
declare that the


Startmaster PW520 - SIP Pt. No. 05534
Startmaster PW600 - SIP Pt. No. 05536
Startmaster PW760 - SIP Pt. No. 05537
Startmaster PWT1000 - SIP Pt. No. 05538
Startmaster PWT1400 - SIP Pt. No. 05539

Conforms to the requirements of the following directive(s), as indicated.

2006/95/EC	Low Voltage Directive
2004/108/EC	EMC Directive
2002/95/EC	ROHS Directive

And the following harmonised standard(s)

EN ISO 12100-2/A1:2009
EN 61029-1:2009
EN 55014-1:2006
EN 55014-2/A1:2008
EN 61000-3-2:2006
EN 61000-3-3:2008

Signed: 

Mr P. Ippaso - Director - SIP (Industrial Products) Ltd
Date: 21/05/2012.



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SAFETY INSTRUCTIONS

IMPORTANT: Please read the following instructions carefully, **failure to do so could lead to serious personal injury and / or damage to the Starter / charger and anything connected to it.**

When using your starter / charger, basic safety precautions should always be followed to reduce the risk of fire, electric shock, personal injury and / or damage to the starter / charger. Read all these instructions before operating the charger and save this user manual for future reference.

SIP recommends that the starter / charger should **not** be modified or used for any application other than that for which it was designed. If you are unsure of its relative applications do not hesitate to contact us and we will be more than happy to advise you.

These starter / chargers are designed for the charging of lead-acid batteries, and for starting vehicles with lead acid batteries fitted. They should not be used as a DC power source, or used to recharge non-rechargeable batteries. To do so may cause fire, electric shock, etc.

They are designed to be powered from a 230v ~ 50 / 60Hz supply, which is reliably connected to the buildings ground (earth) point.

If the supply cable needs to be extended, ensure the cross-sectional area of the wire in the extension lead is of a sufficient size for the supply of current over the distance required.

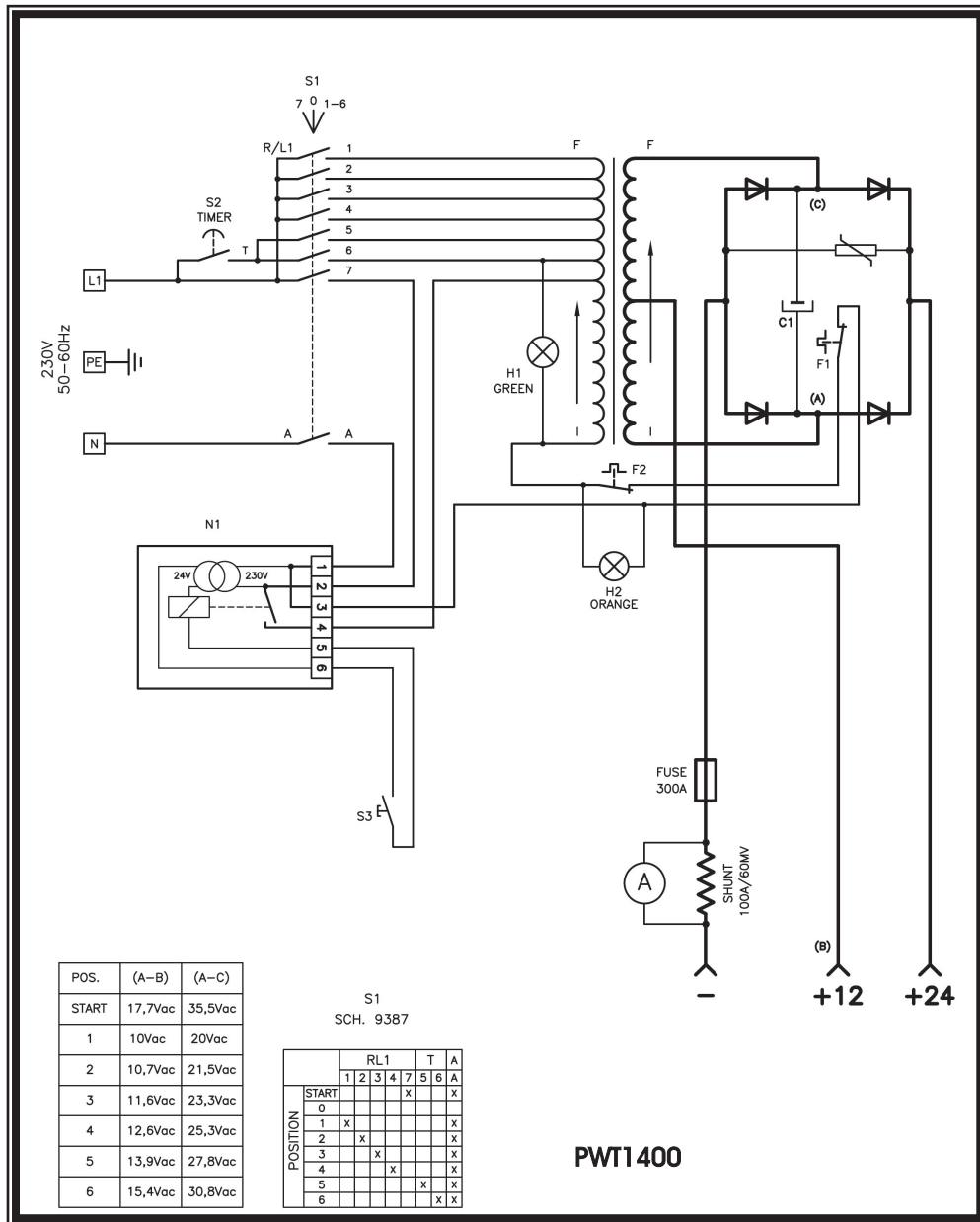
If the starter / charger is interrupted or damaged due to heavy impact etc., the battery should be taken off charge immediately.

Do not dismantle the starter / charger - If repairs are required, they should be performed by a suitably qualified person. Incorrect reassembly may result in a fire hazard and / or electric shock.

Always disconnect the starter / charger from any connected battery and the mains supply prior to cleaning the casing or changing fuses etc.

When connecting the starter / charger whilst the battery is still connected to the vehicle - connect the lead to the battery first (normally +). The other connection is to be made to the chassis as far away as practical from the battery and fuel line. (a spark can be generated when connecting the second clip which can ignite battery or fuel gases). The starter / charger is then to be connected to the mains supply. Once charging is complete, disconnect the starter / charger from mains supply first, and then remove the chassis connection followed by the battery connection.

NOTES



During charging, batteries give off some hydrogen and oxygen creating a highly explosive mix. Ensure adequate ventilation exists and avoid sparks, smoking, etc.

During battery maintenance ensure adequate clean water is available in the event of an acid spill. The liquid inside batteries is highly corrosive therefore ensure that it is not allowed to make contact with the skin (especially eyes). In the event of contact, flush the area with clean water and immediately consult a doctor.

Lead-acid batteries store a large amount of energy. Short-circuiting the battery or charger terminals will cause the battery to try and release this energy immediately, which can result in fire or personal injury. Prevent any metal object (or other conductive material) from touching the + and - terminals of the charger or battery at the same time.

KNOW YOUR STARTER / CHARGER: Read and understand the owner's manual and labels affixed to the charger. Learn its applications and limitations, as well as the potential hazards specific to it.

DO NOT USE THE STARTER / CHARGER IN DANGEROUS ENVIRONMENTS: Do not use your starter / charger in damp or wet locations, or expose it to rain. Always provide adequate space around the starter / charger.

KEEP CHILDREN AND UNTRAINED PERSONNEL AWAY FROM THE WORK AREA: All visitors should be kept at a safe distance from the work area.

STAY ALERT: Always watch what you are doing and use common sense.

DISCONNECT THE STARTER / CHARGER FROM THE MAINS SUPPLY: When not in use.

DO NOT ABUSE THE MAINS LEAD: Never pull the mains lead it to remove the plug from the mains socket. Keep the mains lead away from heat, oil and sharp edges. If the mains lead is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid unwanted hazards.

HAVE YOUR STARTER / CHARGER REPAIRED BY A QUALIFIED PERSON: The starter / charger is in accordance with the relevant safety requirements. Repairs should only be carried out by qualified persons using original spare parts, otherwise this may result in considerable danger to the user and void the warranty.

- **DANGER!** Check that the starter / charger is in sound condition and good working order. Take immediate action to repair or replace damaged parts.
- **USE RECOMMENDED PARTS ONLY** - Unapproved parts may be dangerous and will invalidate the warranty.
- **WARNING!** Only operate on a level and stable surface.
- **WARNING!** Do not allow untrained persons to operate the starter /charger and do not operate the machine without all covers etc. correctly fitted.
- **WARNING! RISK OF ELECTRIC SHOCK.** Do not expose the starter / charger to water spray, rain, dripping water or moisture of any kind.
- Do not move or handle the charger when it is running.

SAFETY INSTRUCTIONS...cont

- Do not leave the charger unattended for long periods when in use. Switch the charger off and unplug from the mains supply before leaving the work area.
- Ensure that the starter / charger is correctly turned off when not in use and store in a safe, dry area, out of reach of children.
- Do not unplug the starter / charger to switch it off - always use the on/off switch.
- Keep all combustible materials away from this starter / charger.
- ALWAYS locate the starter / charger in an area of good ventilation.
- ALWAYS keep children and animals away from charger.
- Never stand on the charger.
- DO NOT dismantle or tamper with the starter / charger, as this may be dangerous and will invalidate the warranty.

If a problem with the starter / charger is experienced, or if the mains lead or plug become damaged, contact your distributor for repair.

If the charger is used in a place of work all rules and laws etc. relating to the use of portable electrical appliances should be followed.

WARNING: Risk of Electric Shock!

- Use only the electrical power (voltage, current and frequency) specified on the model plate of the starter / charger, or in this manual. If in doubt contact the manufacturer.
- Use only a three-prong, grounded mains supply socket.
- ALWAYS unplug the starter / charger when not in use.

Safety Symbols Used Throughout This Manual.



Note: Supplementary information.



Danger / Caution: Indicates risk of personal injury and/or the possibility of damage.

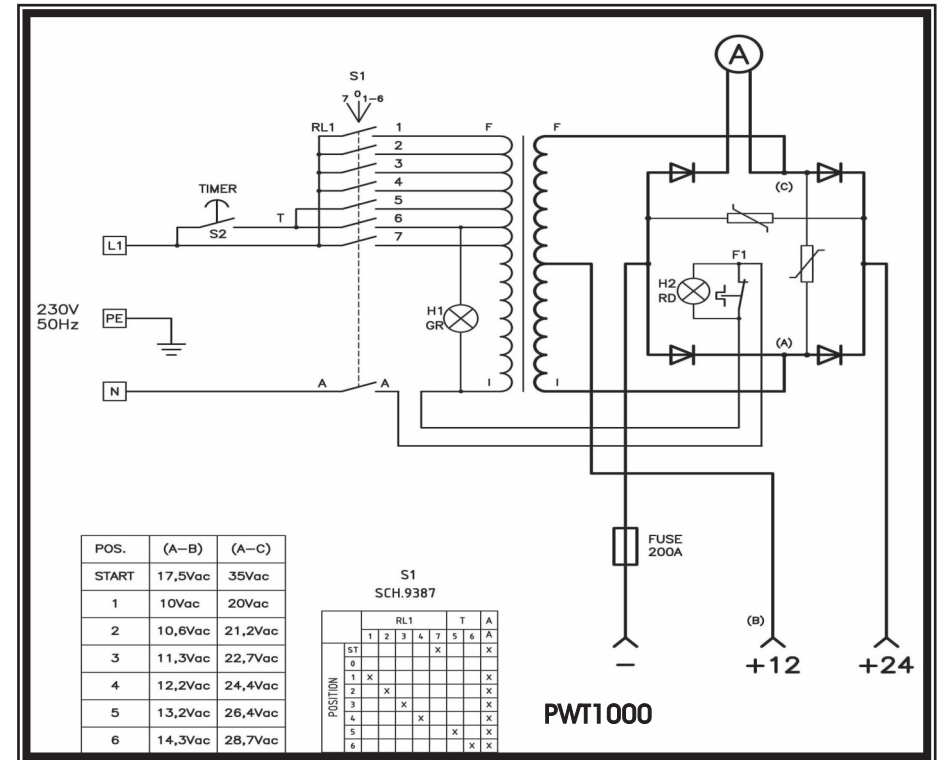
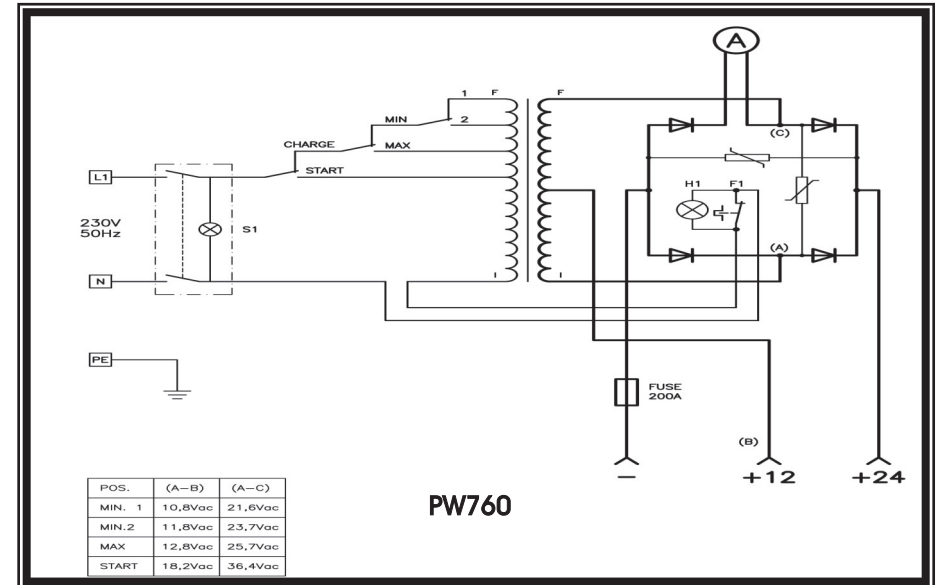


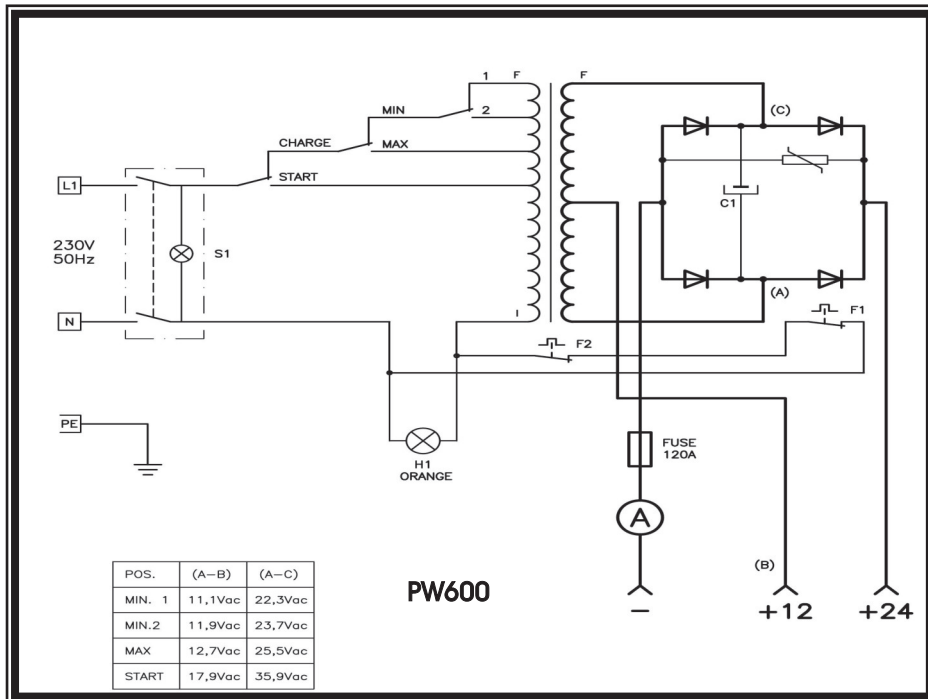
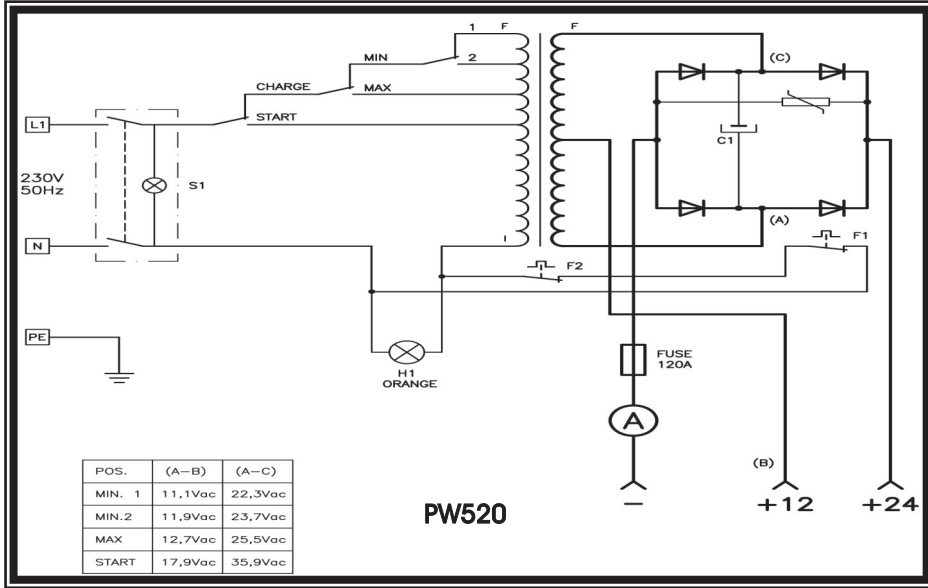
Warning: Risk of electrical injury or damage!



CAUTION: The warnings and cautions mentioned in this user manual can not cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be applied.

WIRING DIAGRAMS...cont





Guarantee:

These SIP starter / chargers are covered by a 12 month parts and labour warranty covering failure due to manufacturers defects. This does not cover failure due to misuse or operating the charger outside the scope of this manual - any claims deemed to be outside the scope of the warranty may be subject to charges including, but not limited to parts, labour and carriage costs. Consumable items such as fuses are not covered by the warranty.

In the unlikely event of warranty claims, contact your distributor as soon as possible. Proof of purchase will be required before any warranty can be honoured.



Note: Proof of purchase will be required before any warranty can be honoured.

ELECTRICAL CONNECTION

WARNING! It is the responsibility of the owner and the operator to read, understand and comply with the following:

You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage.

You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices; A residual current circuit Breaker (RCCB) should be incorporated in the main distribution board. We also recommend that a residual current device (RCD) is used. It is particularly important to use an RCD with portable products that are plugged into a supply which is not protected by an RCCB. If in any doubt consult a qualified electrician.

Connecting to the power supply:

The SIP starter / charger 05534 is fitted with a standard 230v ~ 13 amp type plug; the rest come with no plug fitted as they all need a supply above 13 amps to work correctly (see individual specifications). Before using the starter / charger, inspect the mains lead and plug to ensure that neither are damaged. If any damage is visible have the starter / charger inspected / repaired by a suitably qualified person. If it is necessary to replace the plug a heavy duty impact resistant plug would be preferable.

ELECTRICAL CONNECTION...cont

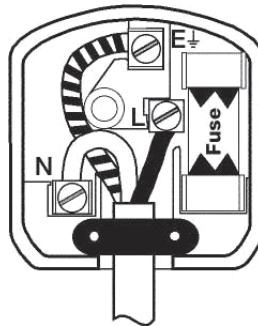
The wires for the plug are coloured in the following way:

Yellow / green	Earth
Blue	Neutral
Brown	Live

As the colours of the wires may not correspond with the markings in your plug, proceed as follows: The wire which is coloured blue, must be connected to the terminal marked with N or coloured black. The wire which is coloured brown, must be connected to the terminal, which is marked L or coloured red. The wire which is coloured yellow / green should be connected to the terminal which is coloured the same or marked



Always secure the wires in the plug terminal carefully and tightly. Secure the cable in the cord grip carefully.



Warning: Never connect live or neutral wires to the earth terminal of the plug. Only fit an approved plug with the correct rated fuse. If in doubt consult a qualified electrician.



Note: Always make sure the mains supply is of the correct voltage and amperage and the correct fuse protection is used. In the event of replacing the fuse always replace the fuse with the same value as the original.



Note: If an extension lead is required in order to reach the mains supply; ensure that this too is rated for the correct voltage and fuse rating.

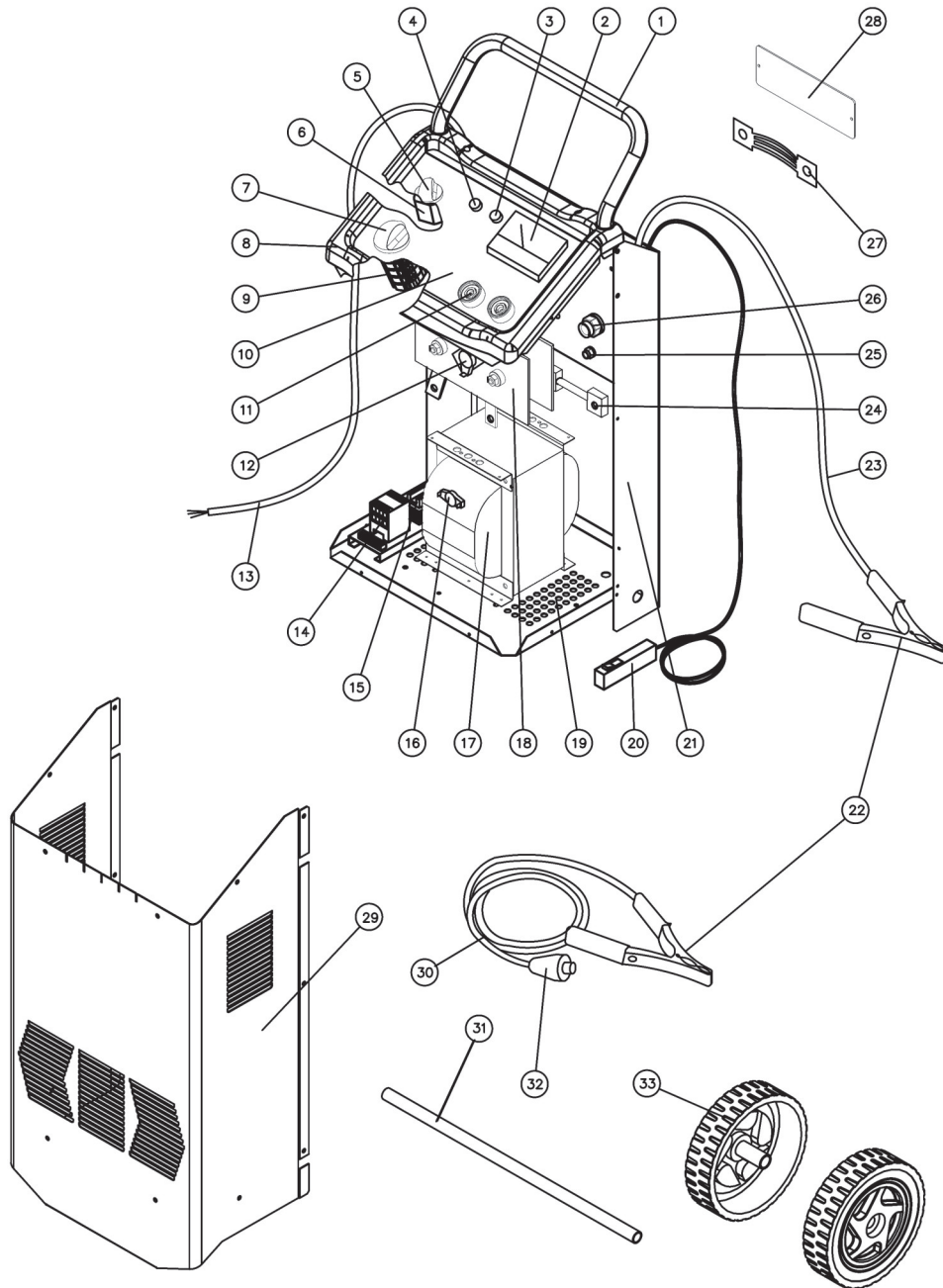


Note: The cross section of the extension lead should be checked so that it is of sufficient size so as to reduce the chances of voltage drops.

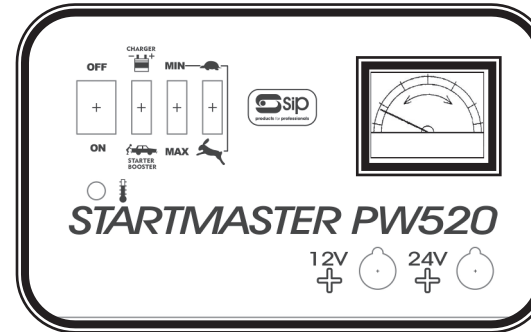
PARTS LIST - STARTMASTER PWT1400

Ref. No.	Description	SIP Part No.
1	Handle	PW02-00083
2	Ammeter 50/400A	PW02-00019
3	Orange pilot lamp	PW02-00040
4	Green pilot lamp	PW02-00041
5	Timer knob	PW02-00043
6	Timer	PW02-00042
7	Switch knob	PW02-00024
8	Front frame (plastic)	PW02-00098
9	Switch 12a sch9387	PW02-00023
10	Front panel	PW02-00095
11	Dinse socket 25sqmm	PW02-00105
12	Thermostat (rectifier)	PW02-00027
13	Mains lead	PW02-00114
14	Contactora 24v 16a	PW02-00074
15	Aux transformer	PW02-00075
16	Thermostat (transformer)	PW02-00028
17	Transformer	PW02-00053
18	Rectifier PMS20/2/2	PW02-00037
19	Lower panel	PW02-00100
20	Remote control cable (without plug)	PW02-00077
21	Rear panel	PW02-00103
22	Red/Black clamps	PW02-00073
23	Black cable	PW02-00069
24	Shunt 100a 60mw	PW02-00076
25	Cable clamp	PW02-00078
26	Cable clamp	PW02-00081
27	Fuse 300a	PW02-00008
28	Fuse cover	PW02-00012
29	Front cover	PW02-00088
30	Red cable	PW02-00061
31	Axle D16 L447	PW02-00108
32	Dinse plug 25sqmm	PW02-00106
33	Wheel D175	PW02-00110

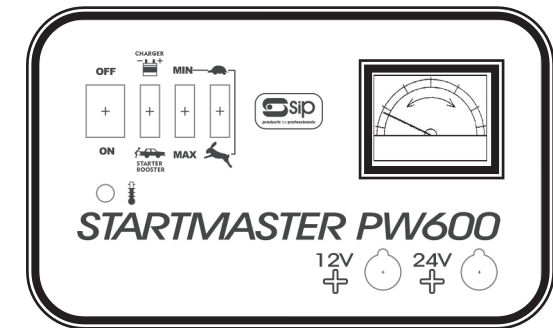
EXPLODED DIAGRAM - STARTMASTER PWT1400



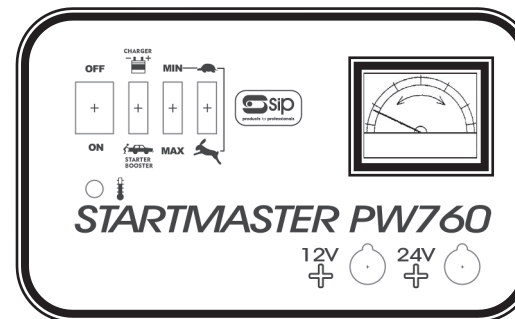
TECHNICAL SPECIFICATION



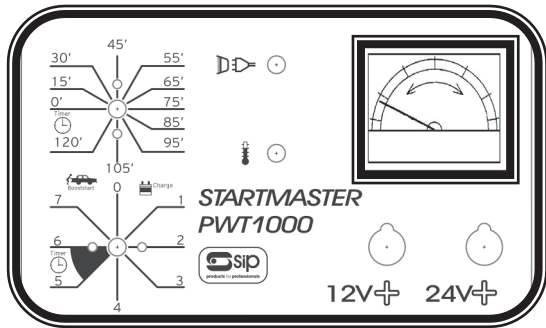
Model No.	05536
Model Name	Startmaster PW600
Input Voltage	230v ~
Input Frequency	50/60 Hz
P. Max. Charge	1000 w
Fuse Rating (Plug)	16A
Fuse Rating (Internal)	120A
Output Voltage/s	12/24v
Max. Battery Capacity	280Ah
Output (A)	30
Output Max. (A)	45
Boost 1 V/c	200
Boost Max. (A)	300



Model No.	05537
Model Name	Startmaster PW760
Input Voltage	230v ~
Input Frequency	50/60 Hz
P. Max. Charge	1320 w
Fuse Rating (Plug)	20A
Fuse Rating (Internal)	200A
Output Voltage/s	12/24v
Max. Battery Capacity	340Ah
Output (A)	38
Output Max. (A)	57
Boost 1 V/c	260
Boost Max. (A)	380

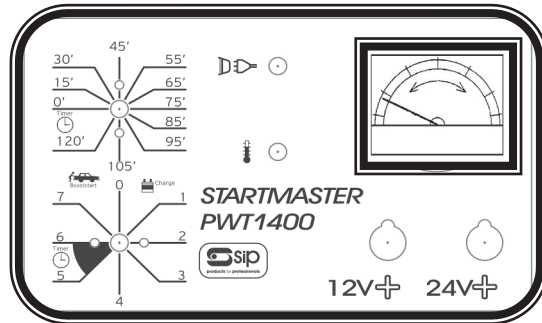


Model No.	05534
Model Name	Startmaster PW520
Input Voltage	230v ~
Input Frequency	50/60 Hz
P. Max. Charge	800 w
Fuse Rating (Plug)	13A
Fuse Rating (Internal)	120A
Output Voltage/s	12/24v
Max. Battery Capacity	200Ah
Output (A)	25
Output Max. (A)	42
Boost 1 V/c	145
Boost Max. (A)	260



Model No.	05538
Model Name	Startmaster PWT 1000
Input Voltage	230v ~
Input Frequency	50/60 Hz
P. Max. Charge	1440 w
Fuse Rating (Plug)	25A
Fuse Rating (Internal)	200A
Output Voltage/s	12/24v
Max. Battery Capacity	370Ah
Output (A)	45
Output Max. (A)	68
Boost 1 V/c	330
Boost Max. (A)	500

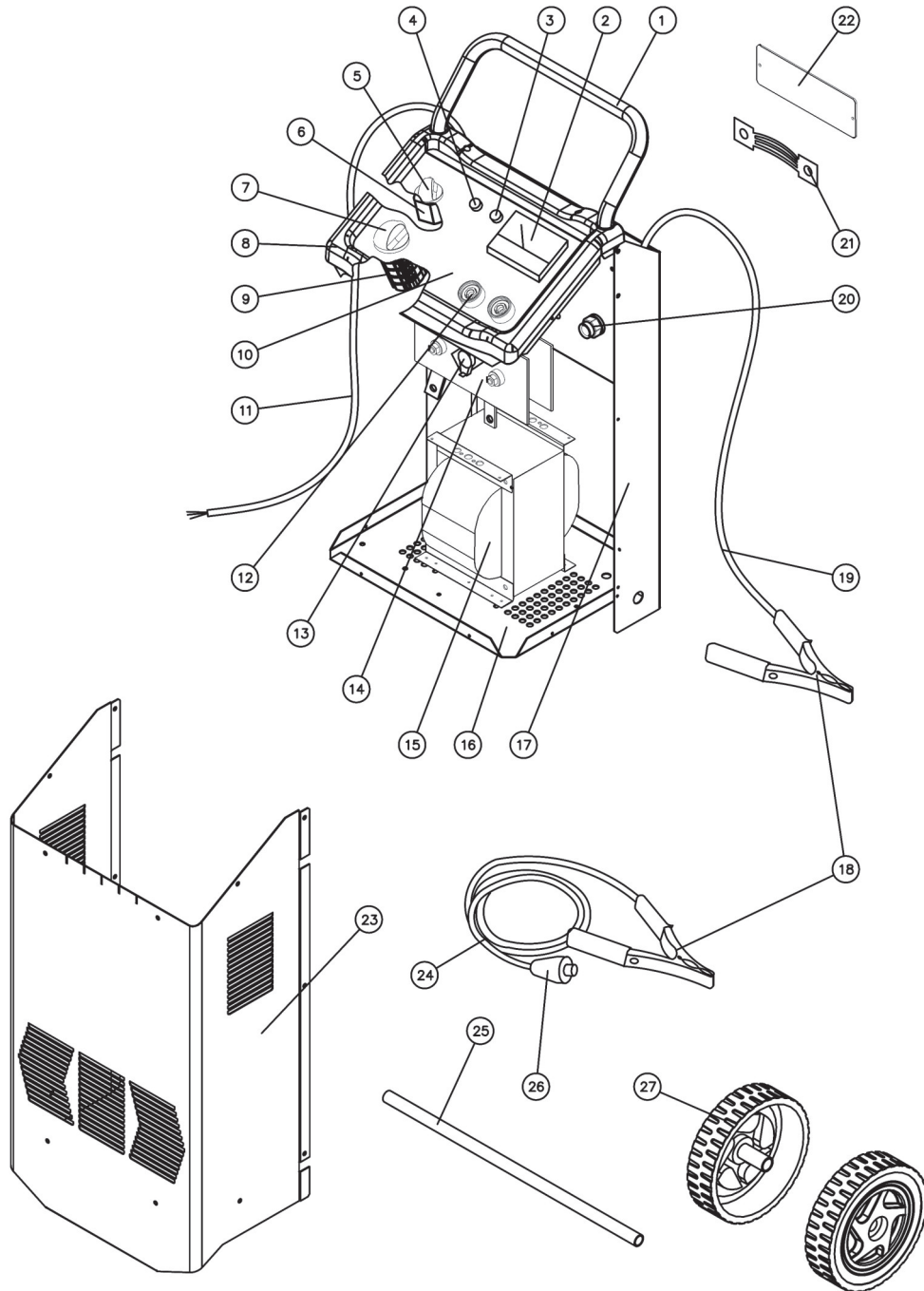
Model No.	05539
Model Name	Startmaster PWT 1400
Input Voltage	230v ~
Input Frequency	50/60 Hz
P. Max. Charge	1820 w
Fuse Rating (Plug)	40A
Fuse Rating (Internal)	300A
Output Voltage/s	12/24v
Max. Battery Capacity	400Ah
Output (A)	60
Output Max. (A)	90
Boost 1 V/c	400
Boost Max. (A)	700



Warning: Duty cycle for boost 3 seconds on, 120 seconds off, maximum 10 cycles. If this is exceeded then you must wait minimum 20 minutes before trying again.

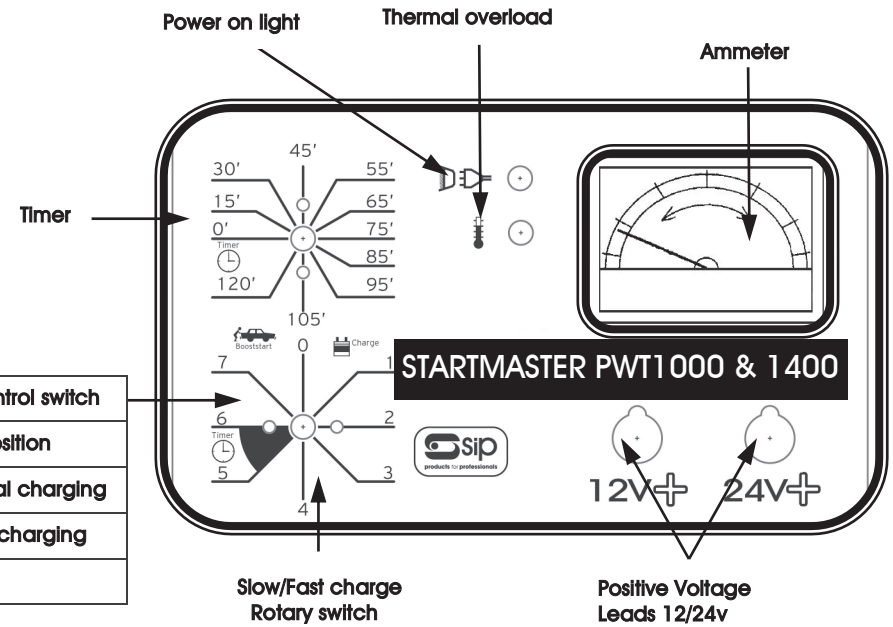
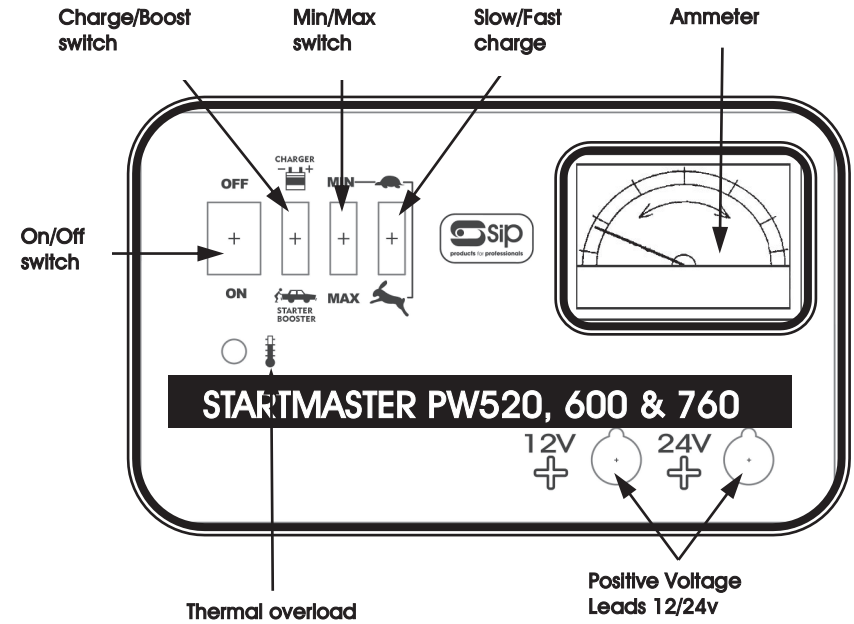
Ref. No.	Description	SIP Part No.
1	Handle	PW02-00083
2	Ammeter 50A/start	PW02-00018
3	Orange pilot lamp	PW02-00040
4	Green pilot lamp	PW02-00041
5	Timer knob	PW02-00043
6	Timer	PW02-00042
7	Switch knob	PW02-00024
8	Front frame (plastic)	PW02-00098
9	Switch 12a sch9387	PW02-00023
10	Front panel	PW02-00094
11	Mains lead	PW02-00114
12	Dinse socket 25sqmm	PW02-00105
13	Thermostat (rectifier)	PW02-00027
14	Rectifier PMS12/2/2	PW02-00036
15	Transformer	PW02-00052
16	Lower panel	PW02-00100
17	Rear panel	PW02-00103
18	Red/Black clamps	PW02-00073
19	Black cable	PW02-00068
20	Cable gland	PW02-00081
21	Fuse 200a	PW02-00007
22	Fuse cover	PW02-00012
23	Front cover	PW02-00088
24	Red cable	PW02-00060
25	Axle D16 L447	PW02-00108
26	Dinse plug 25sqmm	PW02-00106
27	Wheel D175	PW02-00110

EXPLODED DIAGRAM - STARTMASTER PWT1000



GETTING TO KNOW YOUR STARTER / CHARGER

Front Panel:

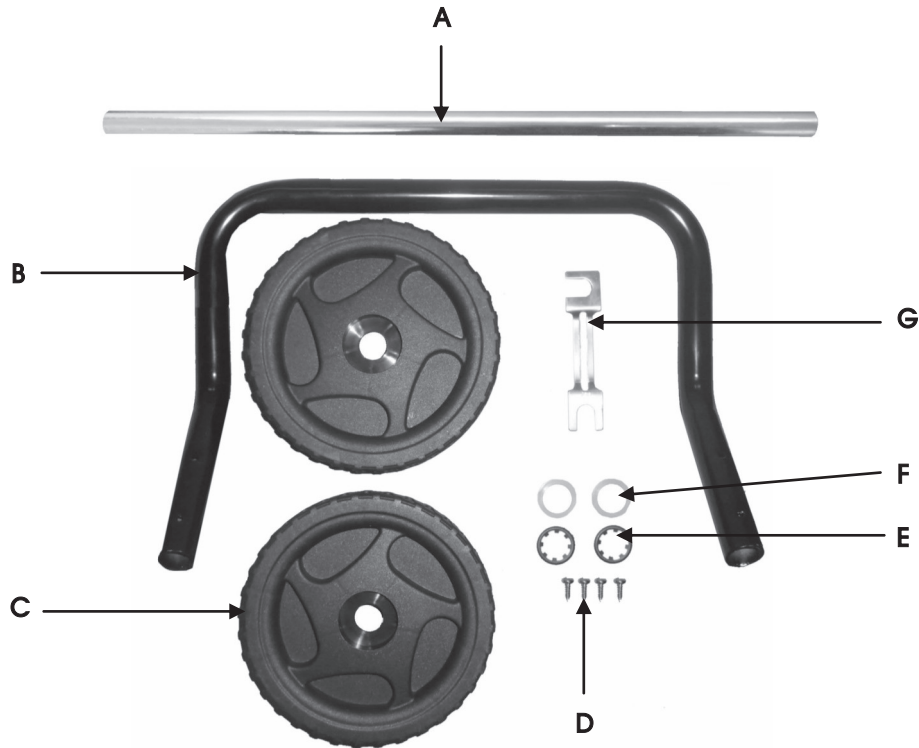


Current control switch	
0	Off position
1-4	Normal charging
5-6	Timer charging
7	Boost

ASSEMBLY INSTRUCTIONS

Items supplied.

- A. 1x Axle
 B. 1x Handle
 C. 2x Wheels
 D. 4x screws
 E. 2x Wheel Clips
 F. 2x Plastic Spacer
 G. 1x Spare Fuse



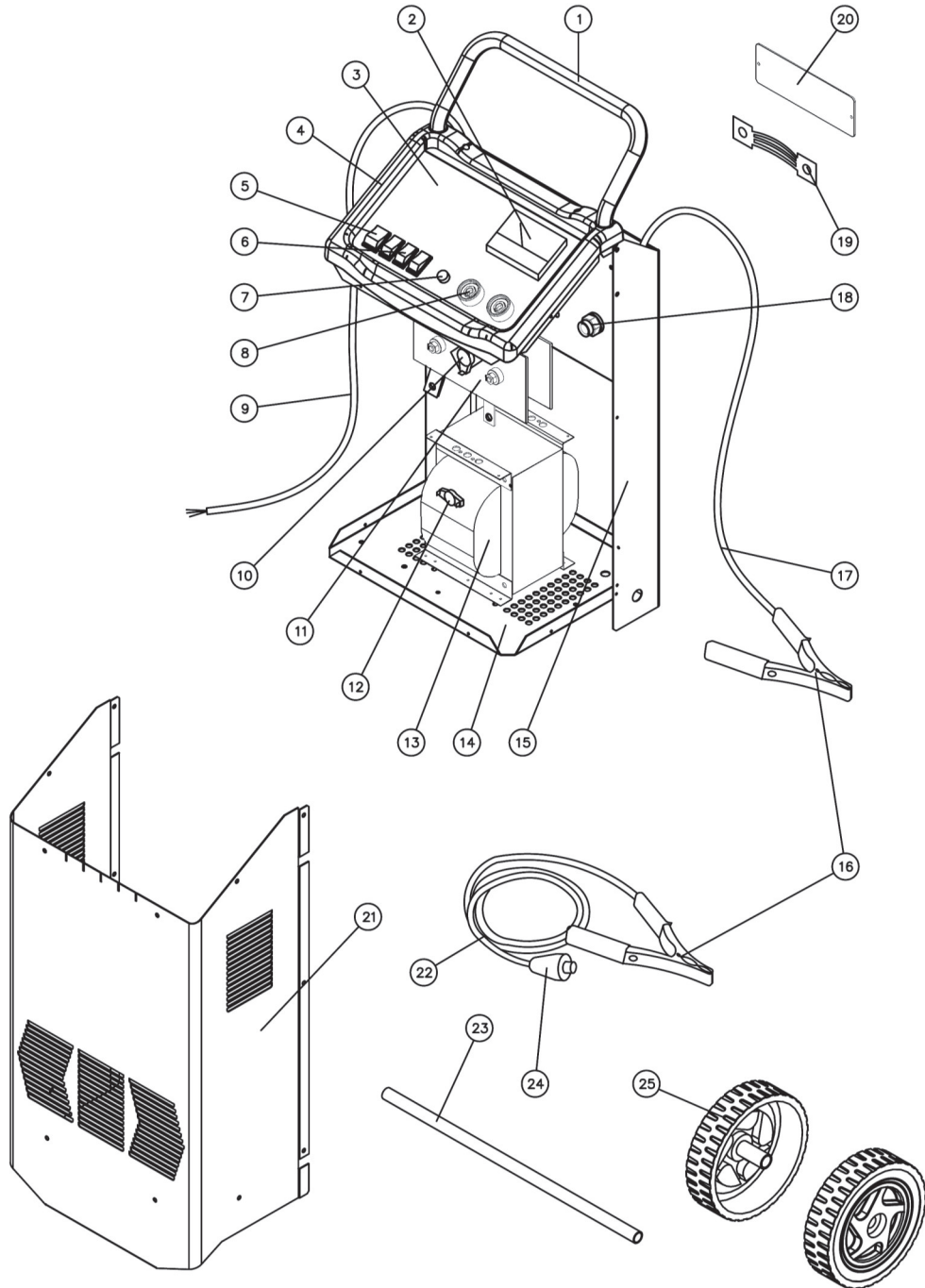
The starter / charger has very little assembly as described below.

1. Slide the handle down the two holes located on top of the charger.
2. Use the four screws to secure the handle to the charger.
3. Attach one wheel clip to the end of the axle, then slide one wheel then a plastic spacer down the axle.
4. Locate the two holes at the bottom of the charger casing and slide the axle through.
5. Fit the 2nd plastic spacer then the wheel.
6. Attach the 2nd wheel clip.

PARTS LIST - STARTMASTER PW760

Ref. No.	Description	SIP Part No.
1	Handle	PW02-00083
2	Ammeter 50A/start	PW02-00018
3	Front panel	PW02-00096
4	Front frame (plastic)	PW02-00098
5	On/Off switch	PW02-00022
6	High/Low switch 16a	PW02-00021
7	Orange pilot lamp	PW02-00039
8	Dinse socket 25sqmm	PW02-00105
9	Mains lead	PW02-00114
10	Thermostat (rectifier)	PW02-00027
11	Rectifier PMS12/2/2	PW02-00036
12	Thermostat (transformer)	PW02-00029
13	Transformer	PW02-00051
14	Lower panel	PW02-00100
15	Rear panel	PW02-00102
16	Red/Black clamps	PW02-00072
17	Black cable	PW02-00067
18	Cable gland	PW02-00081
19	Fuse 200a	PW02-00007
20	Fuse cover	PW02-00012
21	Front cover	PW02-00086
22	Red cable	PW02-00059
23	Axle D16 L412	PW02-00107
24	Dinse plug 25sqmm	PW02-00106
25	Wheel D150	PW02-00109

EXPLODED DIAGRAM - STARTMASTER PW760



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OPERATING INSTRUCTIONS

Charging a Battery:

1. Remove the battery caps to allow any excess gas to escape and to prevent the case bursting.
2. Check battery liquid and top up if required.
3. Connect the + (red) lead to the correct voltage terminal on the starter / charger depending on the voltage of the battery to be charged.
4. Clamp the red clip of charger to the + terminal of battery and black clip to the - terminal of the battery and confirm that connection is correct.



Note: If the battery is still connected to the vehicle - connect one lead to the battery first (normally +). The other connection is to be made to the chassis as far away as practical from the battery and fuel line.



Important: Check with the manufacturer of the vehicle that the battery can be charged whilst still connected to avoid any unwanted damage to the vehicle.

5. After the charger clips are attached, slightly rotate them so as to remove any dirt or oxidization, this will ensure a good contact
6. Set the current switch of the charger to the positions corresponding to the desired mode.
7. The starter / charger should then be connected to the mains supply and switched on.



CAUTION: Do not leave the battery connected to the charger once the charging has finished, this may cause excessive heating of the cells and the electrolyte to "boil". If this happens during charging select a lower setting or stop the charge.



Danger / Caution: Do not touch the positive clamp (Red) with the negative clamp (Black) together to check the starter / charger output - this may cause the internal fuse, or the mains fuse to blow.

Boosting a Vehicle:



Important: Check with the manufacturer of the vehicle to be started that it is safe to use a starter / charger without causing damage to the electrical system.

1. Ensure the mains supply to the starter / charger is off.
2. Check battery liquid and top up if required.
3. Connect the + (red) lead to the correct voltage terminal on the charger depending on the voltage of the vehicle to be started.

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OPERATING INSTRUCTIONS...cont

4. Connect one of the leads to the battery first (normally +). The other connection is to be made to the chassis as far away as practical from the battery and fuel line (a spark can be generated when connecting the second clip which can ignite battery or fuel gases).
5. Set the charge setting to max.
6. Connect the starter / charger to the mains supply and turn on, then switch the charger on.
7. Wait until the ammeter has dropped to about 50%.
8. Then switch the cars ignition on and immediately switch to boost Start on the starter / charger.
9. Once the vehicle has started turn the starter / charger off and remove the clips from the battery / vehicle - chassis connection first followed by the battery connection.



Note: Never exceed the duty cycle of the starter / charger, **important** - 3 second boost and 120 second rest period, a maximum of 10 cycles, failure to adhere to this will void your warranty.



Note: If the vehicle has not started within 10 cycles, switch the starter / charger off and allow to cool before attempting to operate again; failure to do so will void the warranty

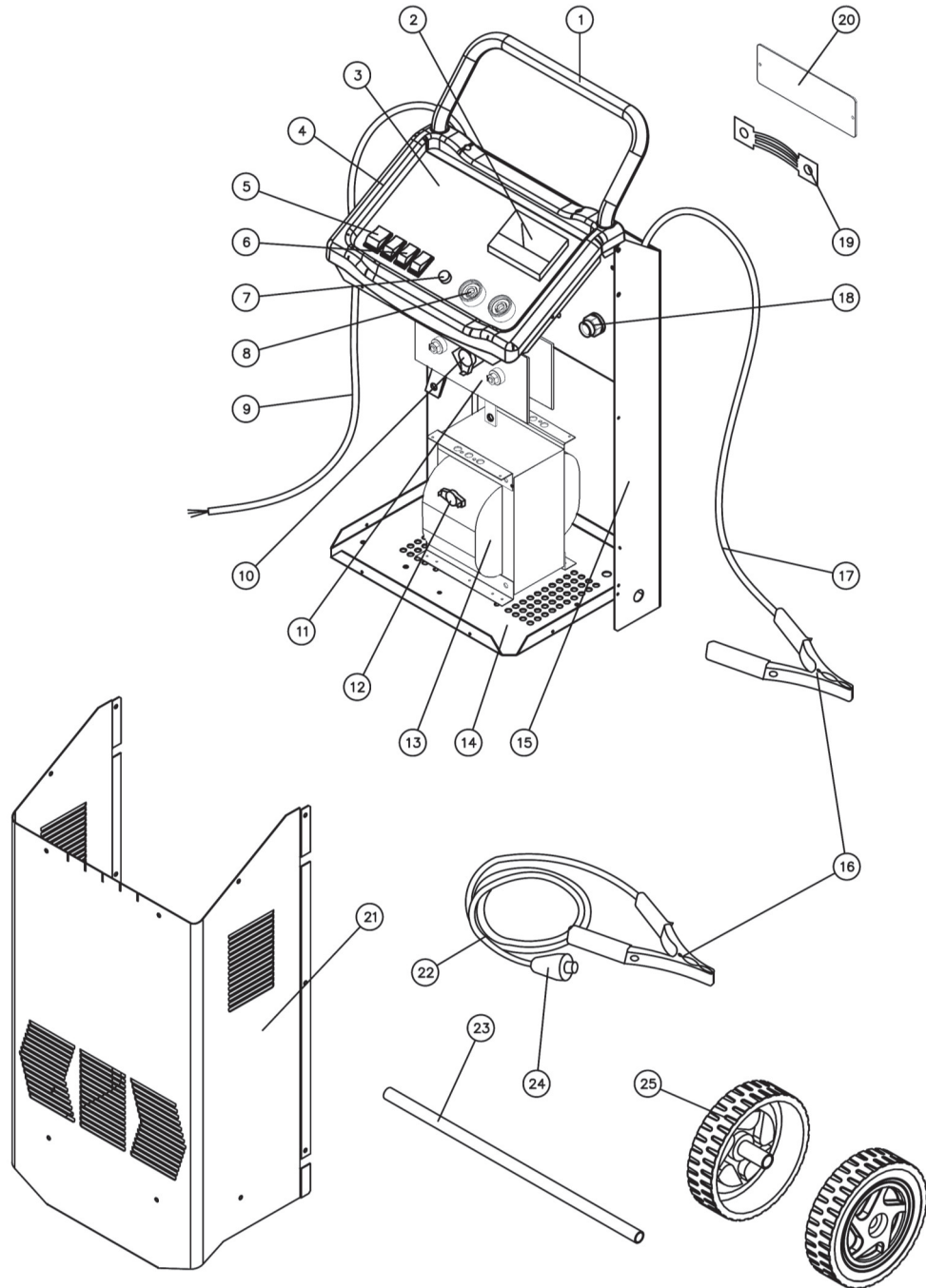
Timer Charging (Applies to the Startmaster PWT1000 & PWT1400 only):

1. Follow the previous instructions "Charging a Battery" to connect the starter / charger to the battery.
2. Turn the current control knob between 5 or 6 (5 lower charging rate, 6 higher charging rate).
3. Turn the timer to your preferred charging time (between 0-120 seconds).
4. Set the current switch of the charger to the positions corresponding to the desired mode.
5. The starter / charger should then be connected to the mains supply and switched on.
6. Once the set time is completed, the starter / charger will automatically stop the current to the battery.

PARTS LIST - STARTMASTER PW600

Ref. No.	Description	SIP Part No.
1	Handle	PW02-00083
2	Ammeter 30A/start	PW02-00017
3	Front panel	PW02-00096
4	Front frame (plastic)	PW02-00098
5	On/Off switch	PW02-00022
6	High/Low switch 16a	PW02-00021
7	Orange pilot lamp	PW02-00038
8	Dinse socket 25sqmm	PW02-00105
9	Mains lead	PW02-00113
10	Thermostat (rectifier)	PW02-00027
11	Rectifier PMS8/2/2	PW02-00034
12	Thermostat (transformer)	PW02-00029
13	Transformer	PW02-00050
14	Lower panel	PW02-00100
15	Rear panel	PW02-00102
16	Red/Black clamps	PW02-00072
17	Black cable	PW02-00065
18	Cable gland	PW02-00080
19	Fuse 120a	PW02-00006
20	Fuse cover	PW02-00012
21	Front cover	PW02-00086
22	Red cable	PW02-00057
23	Axle D16 L412	PW02-00107
24	Dinse plug 25sqmm	PW02-00106
25	Wheel D150	PW02-00109

EXPLODED DIAGRAM - STARTMASTER PW600



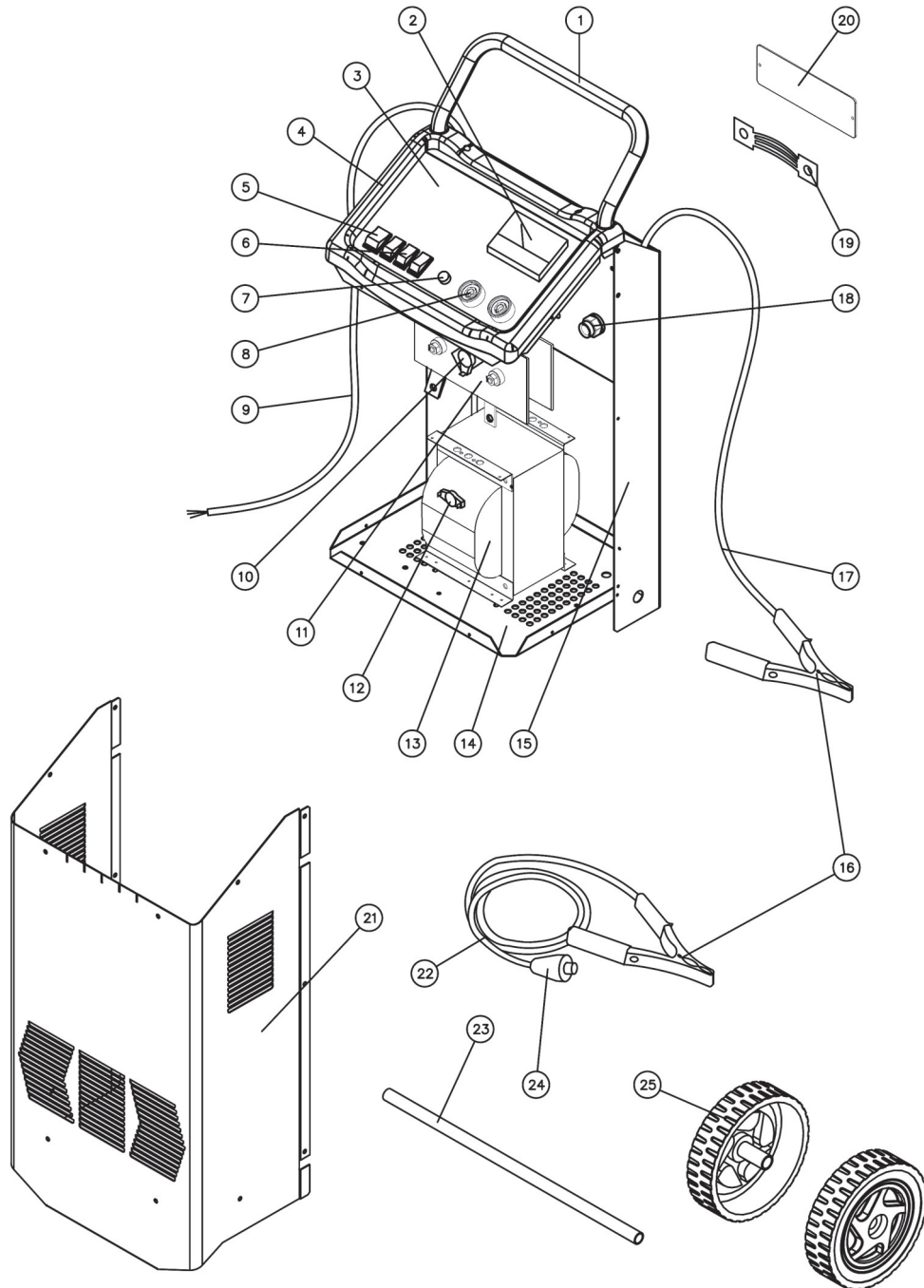
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TROUBLE SHOOTING

Fault	Possible cause	Solution
No charging current	Bad contact of power socket	Repair or replace socket
	Initial voltage is too low	Change battery
	+ and - polarity terminals of battery are oxidised or dirty	Clean terminals
Low charging current	Battery is damaged	Replace battery
	+ and - polarity terminals of battery are oxidised or dirty	Clean terminals
	Battery not accepting charge	Replace battery
Excessive transformer noise	Battery is charged fully	Measure specific gravity
	Unstable position	Change position for proper placement
Orange light on	Thermostat operated	Leave to cool for approximately 20 minutes

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EXPLODED DIAGRAM - STARTMASTER PW520



PARTS LIST - STARTMASTER PW520

Ref. No.	Description	SIP Part No.
1	Handle	PW02-00083
2	Ammeter 30A/start	PW02-00017
3	Front panel	PW02-00096
4	Front frame (plastic)	PW02-00098
5	On/Off switch	PW02-00022
6	High/Low switch 16a	PW02-00021
7	Orange pilot lamp	PW02-00038
8	Dinse socket 25 sqmm	PW02-00105
9	Mains lead	PW02-00112
10	Thermostat (rectifier)	PW02-00027
11	Rectifier PMS8/2/2	PW02-00034
12	Thermostat (transformer)	PW02-00029
13	Transformer	PW02-00048
14	Lower panel	PW02-00100
15	Rear panel	PW02-00102
16	Red/Black clamps	PW02-00072
17	Black cable	PW02-00065
18	Cable gland	PW02-00081
19	Fuse 120a	PW02-00006
20	Fuse cover	PW02-00012
21	Front cover	PW02-00086
22	Red cable	PW02-00057
23	Axle D16 L412	PW02-00107
24	Dinse plug 25sqmm	PW02-00106
25	Wheel D150	PW02-00109