GB

DRAPER®

12V/24V

BATTERY STARTER/CHARGER

70549 / 70551 / 70552

Stock No.70549 Stock No.70551 Stock No.70552 CE

These instructions accompanying the product are the original instructions. This document is part of the product, keep it for the life of the product passing it on to any subsequent holder of the product. Read all these instructions before assembling, operating or maintaining this product.

This manual has been compiled by Draper Tools describing the purpose for which the product has been designed, and contains all the necessary information to ensure its correct and safe use. By following all the general safety instructions contained in this manual, it will ensure both product and operator safety, together with longer life of the product itself.

All photographs and drawings in this manual are supplied by Draper Tools to help illustrate the operation of the product.

Whilst every effort has been made to ensure the accuracy of information contained in this manual, the Draper Tools policy of continuous improvement determines the right to make modifications without prior warning.

1. TITLE PAGE

1.1 INTRODUCTION:

USER MANUAL FOR: 12V/24V BATTERY STARTER/CHARGER
Stock No's: 70549 / 70551 / 70552
Part No's: BCS360T / BCS560T / BCS860T

1.2 REVISIONS:

Date first published August 2019

As our user manuals are continually updated, users should make sure that they use the very latest version.

Downloads are available from: http://drapertools.com/manuals

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1.3 UNDERSTANDING THIS MANUALS SAFETY CONTENT:

WARNING! – Information that draws attention to the risk of injury or death.
CAUTION! – Information that draws attention to the risk of damage to the product or surroundings.

1.4 COPYRIGHT © NOTICE:

2. CONTENTS

3. WARRANTY

3.1 WARRANTY

Draper tools have been carefully tested and inspected before shipment and are guaranteed to be free from defective materials and workmanship.

Should the tool develop a fault, please return the complete tool to your nearest distributor or contact:

Draper Tools Limited, Chandler's Ford, Eastleigh, Hampshire, SO53 1YF. England.

Telephone Sales Desk: (023) 8049 4333 or:

Product Helpline (023) 8049 4344.

A proof of purchase must be provided.

If upon inspection it is found that the fault occurring is due to defective materials or workmanship, repairs will be carried out free of charge. This warranty period covering parts/labour is 12 months from the date of purchase except where tools are hired out when the warranty period is 90 days from the date of purchase. This warranty does not apply to any consumable parts, any type of battery or normal wear and tear, nor does it cover any damage caused by misuse, careless or unsafe handling, alterations, accidents, or repairs attempted or made by any personnel other than the authorised Draper warranty repair agent.

Note: If the tool is found not to be within the terms of warranty, repairs and carriage charges will be quoted and made accordingly.

This warranty applies in lieu of any other warranty expressed or implied and variations of its terms are not authorised.

Your Draper warranty is not effective unless you can produce upon request a dated receipt or invoice to verify your proof of purchase within the warranty period.

Please note that this warranty is an additional benefit and does not affect your statutory rights.

Draper Tools Limited.

4. INTRODUCTION

4.1 SCOPE

Designed for the charging and starting of petrol and diesel engines. Any application other than that it was intended for, is considered misuse.

4.2 SPECIFICATION

Stock No's.	70549	70551	70552
Part No's.	BCS360T	BCS560T	BCS860T
Rated Voltage	230V~50Hz	230V~50Hz	230V~50Hz
Charging voltage	12V/24V	12V/24V	12V/24V
Charging current (effective)	55A(RMS)	85A(RMS)	110A(RMS)
Charging current (average)	35A(EN60335)	50A(EN60335)	70A(EN60335)
Start current (average)	190A	430A	620A
Start current (peak)	300A	500A	800A
Input current for start function	16A	16A	16A
Suitable battery types	Lead Acid	Lead Acid	Lead Acid
Weight (machine only)	14kg	23.2kg	27.7kg

4.3 HANDLING & STORAGE

– Care must be taken when handling this product.
  - Dropping this product could have an effect on its accuracy and could also result in personal injury. This product is not a toy and must be respected.

– Environmental conditions can have a detrimental effect on this product if neglected.
  - Exposure to damp air can gradually corrode components.
  - If the product is unprotected from dust and debris, components will become clogged.
  - If not cleaned and maintained correctly or regularly, the product will not perform at its best.

Store in a dry location out of the reach of children.

5. HEALTH AND SAFETY INFORMATION

5.1 GENERAL SAFETY INSTRUCTIONS FOR POWER TOOL USE

When using any type of power tool there are steps that should be taken to make sure that you, as the user, remain safe.

Common sense and a respect for the tool will help reduce the risk of injury.

Read the instruction manual fully. Do not attempt any operation until you have read and understood this manual.

Most important, you must know how to safely start and stop this machine, especially in an emergency.

Keep the work area tidy and clean. Attempting to clear clutter from around the machine during use will reduce your concentration. Mess on the floor creates a trip hazard. Any liquid spilt on the floor could result in you slipping.

Find a suitable location. If the machine is bench mounted, the location should provide good natural light or artificial lighting as a replacement. Avoid damp and dust locations as it will have a negative effect on the machine's performance. If the machine is portable, do not expose the tool to rain. In all cases do not operate power tools near any flammable materials.

Keep bystanders away. Children, onlookers and passers by must be restricted from entering the work area for their own protection. The barrier must extend a suitable distance from the tool user.

Unplug and house all power tools that are not in use. A power tool should never be left unattended while connected to the power supply. They must be housed in a suitable location away, locked up and from children. This includes battery chargers.

Do not overload or misuse the tool. All tools are designed for a purpose and are limited to what they are capable of doing. Do not attempt to use a power tool (or adapt it in any way) for an application it is not designed for. Select a tool appropriate for the size of the job. Overloading a tool will result in tool failure and user injury. This also covers the use of accessories.

Dress properly. Loose clothing, long hair and jewellery are all dangerous because they can become entangled in moving machinery. This can also result in parts of body being pulled into the machine. Clothing should be close fitted, with any long hair tired back and jewellery and neck ties removed. Footwear must be fully enclosed and have a non-slip sole.

Wear personal protective equipment (PPE). Dust, noise, vibration and swarf can all be dangerous if not suitably protected against. If the work involving the power tool creates dust or fumes, wear a dust mask. Vibration to the hands caused by operating some tools for longer periods must be protected against. Wear vibration reducing gloves and allow long breaks between uses. Protect against dust and swarf by wearing approved safety goggles or a face shield. These are some of the more common hazards and preventions. However, always find out what hazards are associated with the machine/work process and wear the most suitable protective equipment available.

Do not breathe contaminated air. If the work creates dust or fumes, connect the machine (if possible) to an extraction system either locally or remotely. Working outdoors can also help if possible.

Move the machine as instructed. If the machine is hand held, do not carry it by the power supply cable. If the product is heavy, employ a second or third person to help move it safely or use a mechanical device. Always refer to the instructions for the correct method.

Do not overreach. Extending your body too far can result in loss of balance and you falling. This could be from a height or onto a machine and will result in injury.

Maintain your tools correctly. A well maintained tool will do the job safely. Replace any damaged or missing parts immediately with original parts from the manufacturer. As applicable; keep blades sharp, moving parts clean, oiled or greased, handles clean and emergency devices working.

5. HEALTH AND SAFETY INFORMATION

Wait for the machine to stop. Unless the machine is fitted with a safety brake; some parts may continue to move due to momentum. Wait for all parts to stop; then unplug it from the power supply before making any adjustments, carrying out maintenance operations or just finishing using the tool.

Remove and check setting tools. Some machinery requires the use of additional tools or keys to set, load or adjust the power tool. Before starting the power tool always check to make certain they have been removed and are safely away from the machine.

Prevent unintentional starting. Before plugging any machine in to the power supply make sure the switch is in the OFF position. If the machine is portable, do not hold the machine near the switch and take care when putting the machine down that nothing can operate the switch.

Carefully select an extension lead. Some machines are not suitable for use with extension leads. If the tool is designed for use outdoors use an extension lead that is also suitable for that environment. When using an extended lead select one capable of handling the current (amps) drawn by the machine in use. Fully extend the lead regardless of the distance between the power supply and the tool. Excess current (amps) and a coiled extension lead will both cause the cable to heat up and can result in fire.

Concentrate and stay alert. Distractions are likely to cause an accident. Never operate a power tool if you are under the influence of drugs (prescription or otherwise), including alcohol or if you are feeling tired. Being disorientated will result in an accident.

Have this tool repaired by a qualified person. This tool is designed to confirm to the relevant international and local standards and as such should be maintained and repaired by someone qualified using only original parts supplied by the manufacturer. This will ensure the tool remains safe to use.

5.2 RESIDUAL RISK

Important note: Although the safety instructions and operating manuals for our tools contain extensive instructions of safe working with power tools, every power tool involves a certain residual risk which can not be completely excluded by safety mechanisms. Power tools must therefore always be operated with caution!

5.3 SAFETY INSTRUCTIONS FOR BATTERY PACKS/CHARGERS

Working in vicinity of a lead-acid battery is dangerous. Batteries generate explosive gases during normal battery operation. For this reason, it is of utmost importance that each time before using your charger, you read this manual and follow the instructions exactly.

WARNING: Handling the cord on this product or cords associated with accessories sold with this product, will expose you to lead, a chemical known to the State of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling.

5.4 GENERAL BATTERY SAFETY

1. Before you use your battery charger, be sure to read all instructions and cautions printed on:
   - Battery Charger
   - Battery
   - Vehicle or unit using battery
2. Use battery charger on LEAD ACID type rechargeable batteries only, such as used in autos, trucks, tractors, airplanes, vans, RV's trolling motors, etc. Charger is not intended to supply power to low-voltage electrical system other than in an automotive application.

Warning: Do not use battery charger for charging dry-cell batteries that are commonly used with home appliances. These batteries may burst and cause injury to persons and damage to property.

3. Use only attachments recommended or sold by manufacturer. Use of non-recommended attachments may result in fire, electric shock, or injury.

5. HEALTH AND SAFETY INFORMATION

4. When disconnecting the battery charger, pull by the plug not by the cord. Pulling on the cord may cause damage to cord or plug.
5. Locate battery power cord so it cannot be stepped on, tripped over, or subjected to damage or stress.
6. Do not operate charger with damaged cord or plug. Have cord replaced immediately.
7. Do not operate charger if it has received a sharp blow, been dropped, or otherwise damaged in any way. Take it to a qualified professional for inspection and repair.
8. Do not disassemble charger. Take it to a qualified professional when service or repair is required. Incorrect reassembly may result in electric shock or fire.
9. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning.
10. Always charge battery in a well ventilated area. NEVER operate in a closed-in or restricted area without adequate ventilation.

    Warning: Risk of explosive gas.

11 . Locate charger as far away from battery as DC charger cables permit.

12. Do not expose charger to rain or snow.
13. NEVER charge a frozen battery. If battery fluid (electrolyte) is frozen, bring into a warm area to thaw before charging.
14. NEVER allow battery acid to drip on charger when reading specific gravity or filling battery.
15. NEVER set a battery on top of charger.
16. NEVER place charger directly above battery being charged.
    Gases from battery will corrode and damage charger.
17. NEVER touch the battery clips together when the charger is energized.
18. NEVER crank engine with charger attached to battery.

5.5 PERSONAL PRECAUTIONS AND SAFETY

1. WARNING: Wear complete eye protection and clothing protection, when working with lead-acid batteries.
2. Make sure someone is within range of your voice or close enough to come to your aid when you work with or near a lead-acid battery.
3. Have plenty of fresh water and soap nearby for use if battery acid contacts skin, clothing, or eyes. If battery acid contacts skin or clothing, wash immediately with soap and water.
4. Avoid touching your eyes while working with a battery. Acid particles (corrosion) may get into your eyes! If acid enters your eye, immediately flood eye with running cold water for at least 10 minutes. Get medical attention immediately.
5. Remove all personal metal items such as rings, bracelets, necklaces, and watches when working with a lead-acid battery. A lead-acid battery can produce a short-circuit current high enough to weld a ring (or the like) to metal, causing a severe burn.
6. Take care not to drop a metal tool or other metal onto the battery. Metal may cause sparking or short circuit the battery or another electrical devise. Sparking may cause an explosion.
7. Always operate battery charger in an open well ventilated area.
8. NEVER smoke or allow a spark or flame in the vicinity of the battery or engine. Batteries generate explosive gases!

5.4 CONNECTION TO THE POWER SUPPLY

NOTE: We recommend that the battery is disconnected from the vehicle. This will avoid any possible damage to the alternator. The loss of codes for audio and security systems can be avoided by connecting a Draper Memory Saver (Part No.SMS, Stock No.22277 12V socket type or Part No.EMS, Stock No.22231 EOBD TYPE) before disconnecting the battery. Check that the battery voltage matches that of the charger.

Before connecting the battery charger to the battery ensure that the charger and battery are on a level surface. If the battery has cell filler caps, loosen or remove them to assist the escape of charging gases.

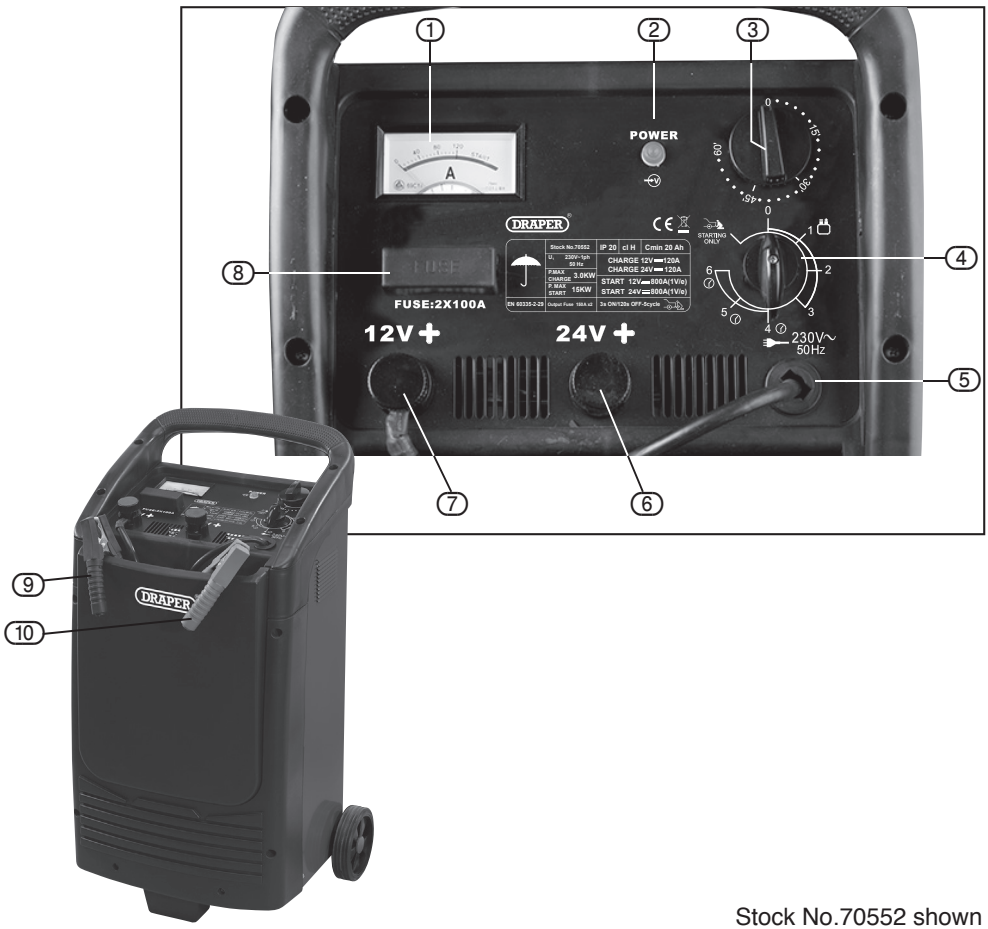
If the battery to be charged is maintenance type, see section 8.1.

i. Adjust the12V/24V positive cable so that it is connected to the thread pillar connection that is correct for the battery you will charge.
ii. Connect the red positive cable (+) to the positive (+) terminal on your battery.
iii. Connect the black negative lead (-) to the negative (-) terminal on your battery.

CAUTION! Double check the polarity connection before proceeding. Incorrectly setting 24V for a 12V battery will result in damage.

6. TECHNICAL DESCRIPTION

6.1 IDENTIFICATION 705551 AND 70552

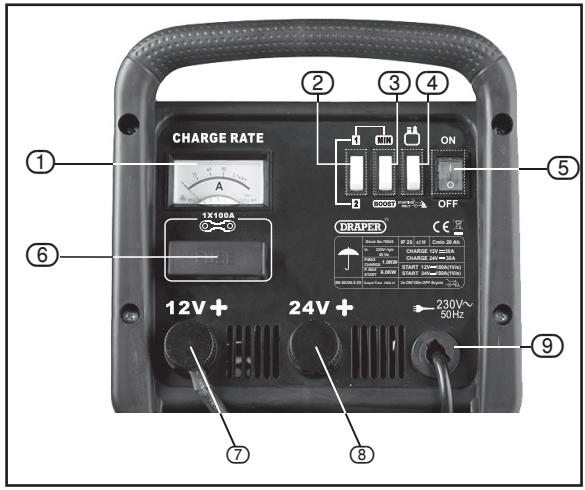


Stock No.70552 shown

1. Ammeter
2. Power indicator
3. Timer
4. Selector
5. Power feed cable
6. Positive 12V connection
7. Positive 24V connection
8. Fuse
9. Negative clamp (black)
10. Positive Clamp (red)

6. TECHNICAL DESCRIPTION

6.1 IDENTIFICATION 70549



Stock No.70549 shown

1. Ammeter
2. Switch: 1(Slow) 2(Fast)
3. Switch: Min - Boost
4. Switch: Charge - Start engine
5. Switch: On - Off
6. Fuse
7. Positive 12V connection
8. Positive 24V connection
9. Power feed cable
10. Negative clamp (black)
11. Positive Clamp (red)

7. UNPACKING AND CHECKING

7.1 PACKAGING

Carefully remove the product from the packaging and examine it for any sign of damage caused during shipping. Lay the contents out and check them. If any part is damaged or missing, do not attempt to use the tool and contact the Draper Helpline immediately (see back page for details).

Retain the packaging material at least during the guarantee period: in case the machine needs to be returned for repair.

Warning! Some of the packaging materials used may be harmful to children, keep them out of reach from children.

Disposed of any packaging correctly and according to local regulations.

8. PREPARING THE BATTERY CHARGER

8.1 BEFORE CHARGING YOUR BATTERY - FIGS 1 & 2

We recommend that the battery is disconnected from the vehicle, this will avoid any possible damage to the alternator. Loss of codes for audio and security etc, can be prevented by connecting a Draper Memory Saver – Stock No. 22277 12V socket type (Fig.1), or Stock No. 22231 EOBD 16pin diagnostic socket type (Fig.2) before disconnecting the battery. Check that the voltage of the battery matches that of the charger.

FIG.1

Before connecting the battery to the charger ensure that both are stable and on a level surface. If the battery has cell filler caps, loosen or remove them to aid in the escape of charging gasses (if the battery is a Gel or maintenance free/sealed type, please refer to battery manufacturers published charging advice). Once the cell caps have been loosened or removed it is advisable to check the level of electrolyte in each cell and top up with distilled water only to the recommended fill level.

Caution! Never top up your battery with tap water.

FIG.2

Stock No's.22277 & 22231 (available separately)

Maintenance free batteries, AGM & Gel.
(low maintenance batteries)

These batteries often have cells with no filler caps and therefore cannot be topped up with distilled water if using a taditional charger for charging these batteries, it is important that during the charging they are not allowed to "gas" because this will reduce the level of electrolyte which cannot be replaced. You should take extra care when the battery reaches "full" during charging and do not use the "fast" charge option on such batteries.

9. OPERATION AND USE

9.1 BATTERY INFORMATION

Before proceeding with the charging of the battery ensure that the battery to be charged is within the recommended amperage range for the charger.
Always follow your battery manufacturers instructions during charging.

If the battery amperage rating is not stated or you are unsure about the rating please see the table below for some typical readings.

Engine Capacity					
<1300cc	5 - 15Ah	15 - 30Ah	35 - 45Ah	-	60 - 110Ah
>1300cc	-	-	45 - 65Ah	45 - 65Ah	60 - 110Ah
Diesel	-	-	60 - 90Ah	60 - 90Ah	60 - 110Ah

9.2 CHARGING TIMES

The charging time depends on the batteries charge condition. A partially charged battery will take less time to charge than a fully discharged battery. The approximate charging time for a battery can be calculated using the following equation:-

$$\text{Charging time/hours} = \frac{\text{Capacity in Ah (battery)}}{\text{Charger output (Amps)}}$$

For example, a 45Ah battery would require approximately 11 hours to charge from a 4.2A battery charger. As your battery nears fully charged status, the ammeter indication needle will return to near the ‘0’ position in the green area of the ammeter display to indicate the battery is fully charged.

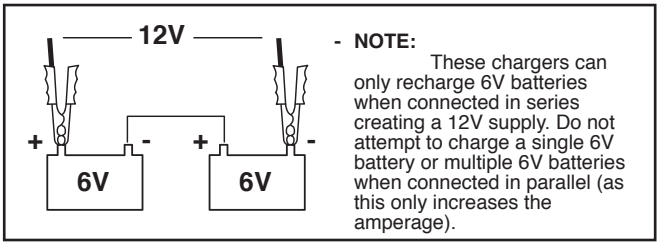
Charge a mid-sized car battery with a typical charge amp of around 4-8 amperes will take about 10-24 hours to charge it fully. To charge your battery to be able to start your car, it would take around 2-4 hours.
Charging the car battery slow is the best to keep a long life for your car battery
You can charge your car battery fast, but it may cause damages to your car battery.

9. OPERATION AND USE

PREPARING TO CHARGE - FIGS 3 - 5

1. Make sure you have either a 12 volt or a 24 volt lead-acid battery and select battery charger switch accordingly.

12V (2 X 6V SERIES) DIAGRAM



- **NOTE:** These chargers can only recharge 6V batteries when connected in series creating a 12V supply. Do not attempt to charge a single 6V battery or multiple 6V batteries when connected in parallel (as this only increases the amperage).

FIG.3

12V SERIES DIAGRAM

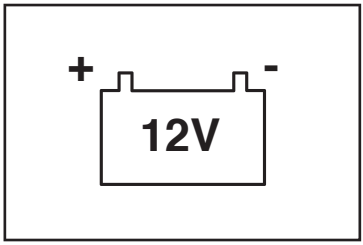


FIG.4

24V SERIES DIAGRAM

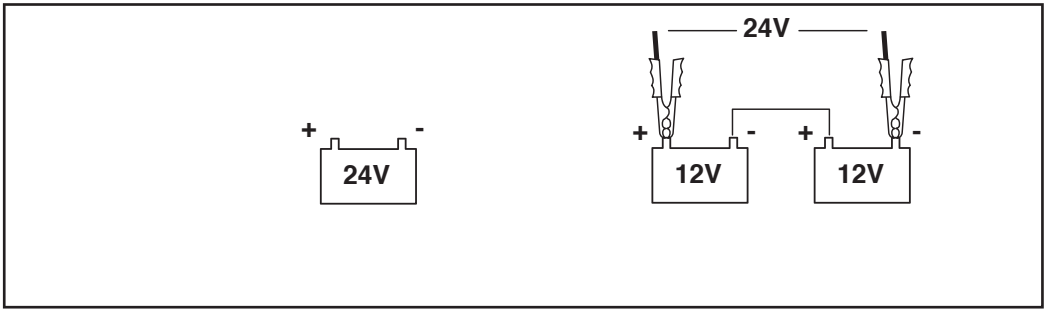


FIG.5

2. Clean battery terminals. Take care to keep corrosion from coming in contact with your eyes.
3. If required, add distilled water in each cell until battery acid reaches levels specified by battery manufacturer. This helps purge excessive gas from cells. Do not overfill. For a battery without cell caps, carefully follow manufacturer's recharging instructions.
4. Study all battery manufacturer's specific precautions, such as removing or not removing cell caps while charging, and recommended rates of charge.
5. Be sure area around battery is well ventilated while battery is being charged.
6. If necessary to remove battery from vehicle to charge, always remove grounded terminal from battery first. Make sure all accessories in the vehicle are off, so as not to cause an arc.
7. A marine (boat) battery must be removed and charged on shore. To charge it on board requires equipment specially designed for marine use.

Note: It is important to determine the battery type before charging.

Warning: This charger will continue to charge even after the battery is charged.

Warning: Overcharging will damage the battery. This is a manual (non-automatic)

battery charger. A Manual charger will continue to charge and will not shut off. You must keep a visual check on the ammeter to determine when the battery is charged.

AMMETER

The ammeter gives a reading of the AMP draw by the battery from the charger. When a fully discharged battery is connected to the charger, the ammeter will read the maximum output rating of the charger, depending on the AMP selection. The charge current will gradually taper down as the battery approaches full charge. As the charge current tapers down, the ammeter needle will also move down.

PERCENT OF CHARGE

The percent of charge scale in intended as a visual aid to help simplify reading the state of charge.

BATTERY TYPES

Three basic types of lead-acid batteries can be given a charge with this charger:

(1) Conventional and Low Maintenance,

(2) Maintenance Free,

(3) Deep Cycle.

Conventional and Low Maintenance

Batteries. These are the antimony/lead batteries. Conventional/Low Maintenance batteries require periodic addition of water to the acid solution (electrolyte). Additional water may be added by removing the filler caps located on the top of the battery.

Important: When antimony is known to be one of the materials, used in the battery's construction, that battery is a Low Maintenance/Conventional type.

Caution: Some Low Maintenance batteries have a relatively smooth top without any apparent battery filler caps. If, however the battery manufacturer/distributor recommends periodic checking of electrolyte level and provides access to the battery for water additions, the battery is probably a Low Maintenance/Conventional type.

Maintenance free batteries, AGM & Gel.

(low maintenance batteries)

These batteries often have cells with no filler caps and therefore cannot be topped up with distilled water if using a taditional charger for charging these batteries, it is important that during the charging they are not allowed to “gas” because this will reduce the level of electrolyte which cannot be replaced. You should take extra care when the battery reaches “full” during charging and do not use the “fast” charge option on such batteries.

Deep Cycle Batteries.

These heavy duty batteries are used in boats, construction equipment, sump pumps, etc. They are normally marked DEEP CYCLE on the outside of the case.

OPERATING INSTRUCTIONS: CHARGING BATTERY IN VEHICLE

When charging battery in the vehicle, take care to determine the battery type and which post is grounded. To reduce risk of a spark near battery, follow these steps when battery is installed in vehicle.

Warning: A spark near battery may cause battery explosion.

1. Position AC power cord and DC charging cords to reduce risk of damage by hood, door, or moving engine parts.
2. Stay clear of fan blades, belts, pulleys, and other parts that can cause injury.
3. Check polarity of battery posts. Battery case will be marked by each post: POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -). NOTE: The positive battery post usually has a larger diameter than the negative post.
4. Determine which post of battery is ground (connected) to chassis.

Note: The negative post is normally grounded.

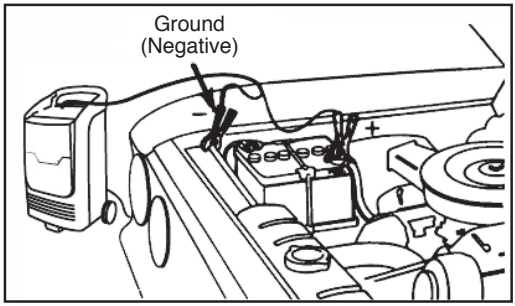


FIG.6

Note: Attach clips to battery post and twist or rock back an forth several times to make a good connection. This tends to keep clips from slipping off terminals and helps to reduce risk of sparking.

POSITIVE GROUNDED POST

5B. For positive-grounded vehicle, connect POSITIVE (RED) clip from battery charger to POSITIVE (RED) ungrounded post of battery. Connect NEGATIVE (BLACK) clip to vehicle chassis or engine block away from battery. Connect to a heavy gauge unpainted metal part of the frame or engine block. WARNING: Do not connect clip to carburettor, fuel lines, or sheet metal body parts.

Note: Attach clips to battery post and twist or rock back and forth several times to make a good connection. This tends to keep clips from slipping off terminals and helps to reduce risk of sparking.

6. Select amperage.
7. Plug charger AC cord into a grounded 120 volt outlet.
8. **Warning:** Be sure area around battery is well ventilated while battery is being charged. Gas can be forcefully blown away by using a piece of cardboard or other non-metallic material as a fan.
9. Continue charging battery until charger's ammeter needle shows half the rate of charge.
10. When battery is fully charged, unplug charger from AC power source.
11. Remove charger clips form (1) chassis and (2) battery post, in that order.
12. Clean and store battery charger.

OPERATING INSTRUCTIONS: CHARGING BATTERY OUT OF VEHICLE - FIG 7

When charging battery out of vehicle, take care to determine the battery type. To reduce risk of a spark near battery, follow these steps when battery is outside vehicle.

Warning: A spark near the battery may cause battery explosion.

Warning: When removing battery from vehicle or boat, disconnect grounded pole first. When disconnecting, make sure all accessories are off, so as not to cause an arc.

(NOTE: A marine (boat) battery must be removed and charged on shore. (To charge on board requires special equipment designed for marine use.)

Warning: When reinstalling battery, attach the ground post first.

1. Check polarity of battery posts. Battery case will be marked by each post: POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -).

Note: The positive battery post usually has a larger diameter than the negative post.

2. Attach a 24-inch long (or longer) 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post. The 24-inch cable is necessary to avoid the possibility of a spark over the top of the battery. 6-gauge is recommended because it is readily available at your auto parts store.
3. Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post battery. Rock clip back and forth to make good connection.

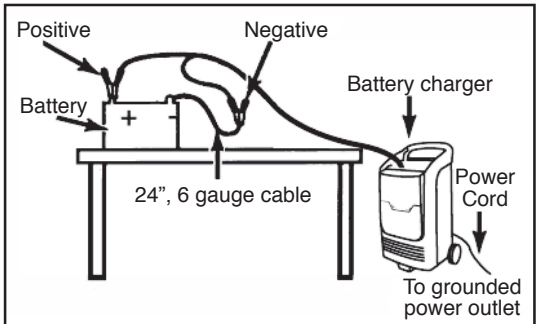


FIG.7

9. OPERATION AND USE

1. Check polarity of battery posts. Battery case will be marked by each post: POSITIVE (POS, P, +) and NEGATIVE (NEG, N, -).

Note: The positive battery post usually has a larger diameter than the negative post.

2. Attach a 24-inch long (or longer) 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, -) battery post. The 24-inch cable is necessary to avoid the possibility of a spark over the top of the battery. 6-gauge is recommended because it is readily available at your auto parts store.
3. Connect POSITIVE (RED) charger clip to POSITIVE (POS, P, +) post battery. Rock clip back and forth to make good connection.
4. Position yourself and free end of 24 inch cable as far away from battery as possible. Then connect NEGATIVE (BLACK) charger clip to free end of cable.

Warning: Do not face battery when making final connection. Rock clip back and forth to make a good connection.

5. Select amperage.
6. Plug charger AC cord into a 120 volt grounded outlet.
7. **Warning:** Be sure area around battery is well ventilated while battery is being charged.
8. Continue charging battery until charger's ammeter needle shows half the rate of charge.
9. When battery is fully charged, unplug charger from AC power source.
10. When battery is fully charged and charger is unplugged,

    1st remove clip from end of Negative end of cable, and,

    2nd remove clip from Positive battery post, in that order.

11. Clean and store battery charger.

70549 - FIG 8

Output voltage selection is achieved by connecting the positive (+) red clamp cable to the appropriate terminal (7) 12V or (8) 24V. Connect the cable to the terminal and securely tighten locking knob.

Position switch (4) to charge to select the battery charging mode. The battery terminal not connected to the chassis has to be connected first. The other connection is to be made to the chassis, remote from the battery and fuel line. The battery charger is then to be connected to the supply mains.

Position switch (5) to the ON position to begin current output. To select the one of the 4 output amperage/charge speed settings select the switch combination as applicable.

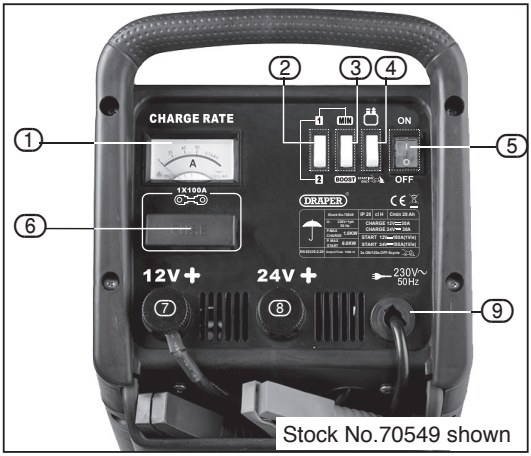


FIG.8

Min. + 1 Low amperage/charge speed

Min. + 2 Medium/Low amperage/charge speed

Max. + 1 Medium/High amperage/charge speed

Max. + 2 High amperage/charge speed

Position switch (2) to 1 or 2 and switch (3) to MIN and observe the output current. Select the combination with the output amperage approaching the 10% figure (5% for deep discharge). Should the setting exceed 10% (5% for deep discharge) switch down until a suitable output is attained and begin charging.

After charging, disconnect the battery charger from the supply mains. Then remove the chassis connection and then the battery connection.

9. OPERATION AND USE

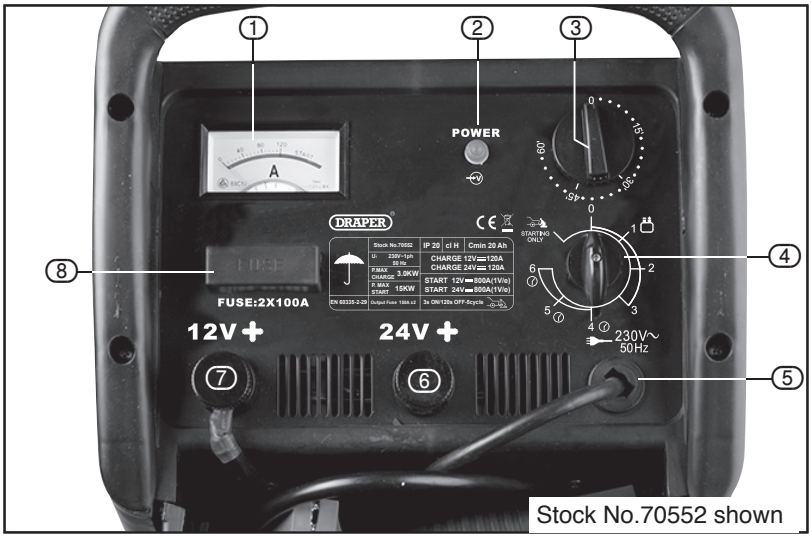


FIG.9

70551 & 70552 - FIG 9

Output voltage selection is achieved by connecting the positive (+) red clamp cable to the appropriate terminal (7) 12V or (6) 24V. Connect the cable to the terminal and securely tighten locking knob.

The battery terminal not connected to the chassis has to be connected first. The other connection is to be made to the chassis, remote from the battery and fuel line. The battery charger is then to be connected to the supply mains.

To select the one of the 4 output amperage/charge speed settings rotate the switch as applicable.

1. Low amperage/charge speed.
2. Medium/Low amperage/charge speed.
3. Medium/High amperage/charge speed.
4. High amperage/charge speed (USED IN CONJUNCTION WITH TIMER ONLY).

Position switch (4) and observe the output current.

Select the position with the output amperage approaching the 10% figure (5% for deep discharge). Should the setting exceed 10% (5% for deep discharge) switch down until a suitable output is attained and begin charging.

Position 4 is used in conjunction with the 60 minute timer (3). Select position 4 and rotate the timer for the desired recharge time. When the timer reaches zero the charge current will stop.

After charging, disconnect the battery charger from the supply mains. Then remove the chassis connection and then the battery connection.

10. MAINTENANCE

10.1 MAINTENANCE/CLEANING INSTRUCTIONS

Very little maintenance is required for the battery charger. Follow common sense in wiping the charger clean and store in a clean, dry area.

1. After use, wipe all battery corrosion and other dirt or oil from clip, cord, and the charger case. Use a dry cloth.
2. Coil charger cords to prevent damage.
3. Have any cracked or frayed cords replaced by a qualified professional.
4. Store battery charger in a clean, dry area.

10.2 FUSE REPLACEMENT - FIG 10

NOTE: Remove the plug from the socket before carrying out adjustment, servicing or maintenance.

Remove the plastic cover labelled FUSE. Loosen the two 10mm nuts and replace the fuse(s) with another of the same rating. Re-tighten the two nuts and replace the cover before attempting to repeat the required task. If the fuse blows again, double check the set-up/connections and if unable to detect the problem contact the service agent.

Stock No.70549 shown

FIG.10

11. TROUBLESHOOTING

WARNING: For your safety always turn the main switch on the machine "off" and remove the plug from the power supply before carrying out any maintenance or trouble shooting.

Problem	Cause	Remedy
No meter reading.	1. Connections are reversed. 2. Poor electrical connection. 3. AC outlet is dead. 4. Battery is defective (will not accept charge).	1. With charger unplugged, reverse clips and reconnect (rock back and forth to bite in). 2. Clean clips and battery poles and reconnect (rollback and forth to bite in). 3. Plug in a lamp or other appliance to check for voltage. 4. Have battery checked.
Charger will not taper down.	1. Battery has problem and will not take full charge.	1. Have battery checked.
High meter reading.	1. Battery is defective (will not take a charge).	1. Have battery checked.
Charging current is less than full out put rating of charger.	1. Battery is partially charged. 2. Battery is defective (battery plates are crusted) and will not accept a full charge. 3. AC power supply is low.	1. Continue charging. 2. Have checked and replace battery. 3. Plug charger into another grounded AC outlet.
Ammeter needle moves to extreme right, remains a short time, then returns to zero, accompanied by a clicking sound.	1. Severely discharged battery (but otherwise good battery) 2. Battery is defective (will not accept charge). 3. Charger is cycling after circuit breaking overload.	1. Allow charging to continue until battery has recovered sufficiently to take a charge (Circuit breaker will continue to cycle and needle will swing side to side until battery has recovered). 2. Have battery checked. 3. Wait until charger automatically resets itself.

12. DISPOSAL

12.1 DISPOSAL

– At the end of the machine's working life, or when it can no longer be repaired, ensure that it is disposed of according to national regulations.
– Contact your local authority for details of collection schemes in your area.

In all circumstances:

- Do not dispose of power tools with domestic waste.
- Do not incinerate.
- Do not dispose of WEEE* as unsorted municipal waste.

** Waste Electrical & Electronic Equipment.*

13. EXPLANATION OF SYMBOLS

13.1 EXPLANATION OF SYMBOLS

Read the instruction manual.

Do not abandon into the environment.

Keep out of the reach of children.

Warning!

Fuse.

Polarity indication.

Class 1 appliance
(must be earthed).

WEEE –
Waste Electrical &
Electronic Equipment.
Do not dispose of Waste Electrical & Electronic Equipment in with domestic rubbish.

Do not incinerate or
throw onto fire.

Short-circuit-proof safety
isolating transformer

Rated voltage.

CONTACTS

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Service/Warranty Repair Agent:
For aftersales servicing or warranty repairs, please contact the Draper Tools Helpline for details of an agent in your local area.

YOUR DRAPER STOCKIST

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