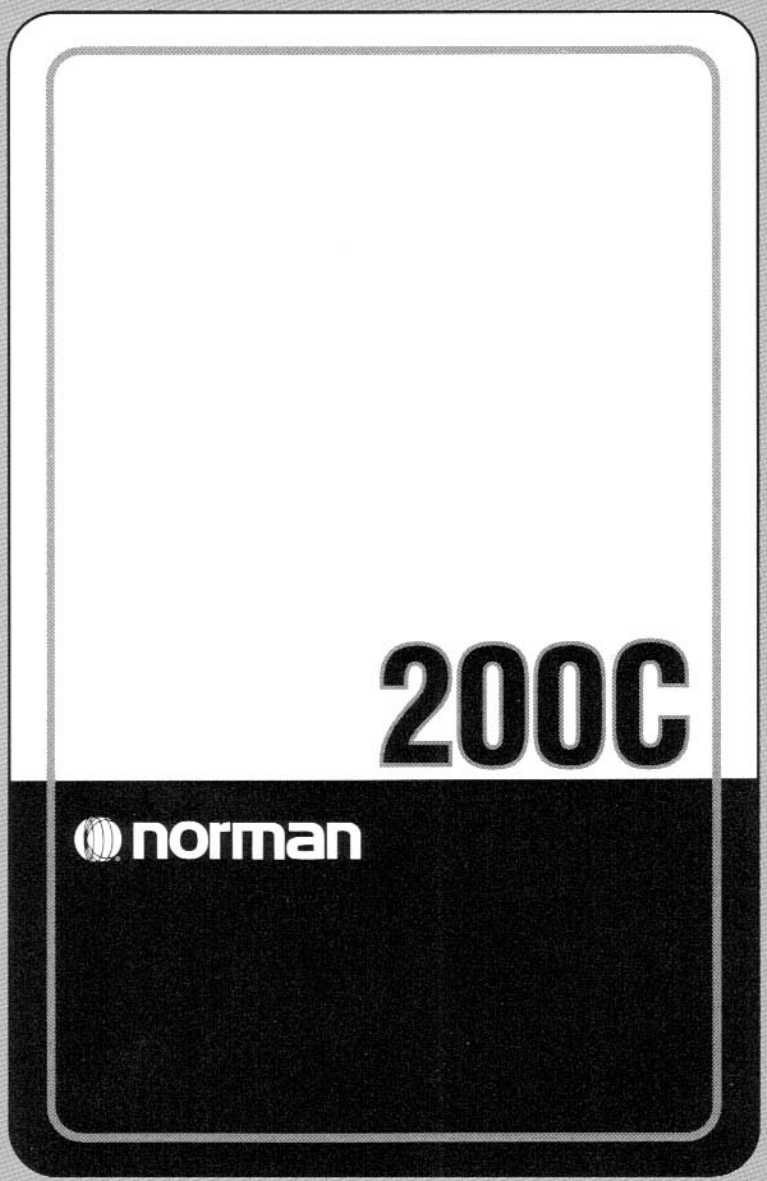
norman

INSTRUCTION MANUAL



200C

200C

Welcome to the Norman family of interchangeable flash equipment.

You have just purchased the 200C, *Version 2*, battery portable flash system that includes an improved 200C power supply, B4124 "Super Battery", C55 "Delta V" Battery Charger, and LH2K lamphead. Improvements over *Version 1* include:

- 200C Power Supply — Internal improvements maximize dependability. Improved shoulder strap contours to the shoulder and enables the unit to be hung from a light stand.
- LH2K Lamphead — Stronger housing, and test button is recessed to prevent accidental triggering. The LH2K-ML modeling lamp lamphead has also been improved and its model number has been changed to LH2K-M.
- B4124 "Super Battery" — Longer battery life, about 25% more flashes per charge and no memory effect. 190+ Flashes per charge at 200 w-s.
- C55 "Delta V" Charger — Operates on a different principle than the previous charges. Computerizes the charging process and extends battery life.

In addition, the 200C offers these features:

- Compact Size — Half the size of the 200B model.
- Lighter Weight — 3.7 lbs. (37% lighter than the 200B).
- Fast Recycling Time — 4/10 second at 50 w-s, 8/10 second at 100 w-s and 1-1/2 seconds at 200 w-s.
- Low Battery Light — Illuminates when the battery charge is low.

The 200C is interchangeable with the 450 Series line which includes over 50 accessory items. It is our desire that you greatly benefit from the engineering and manufacturing expertise that have brought you this unique system. If you have any questions or suggestions, please feel free to contact us at any time.

200C POWER SUPPLY

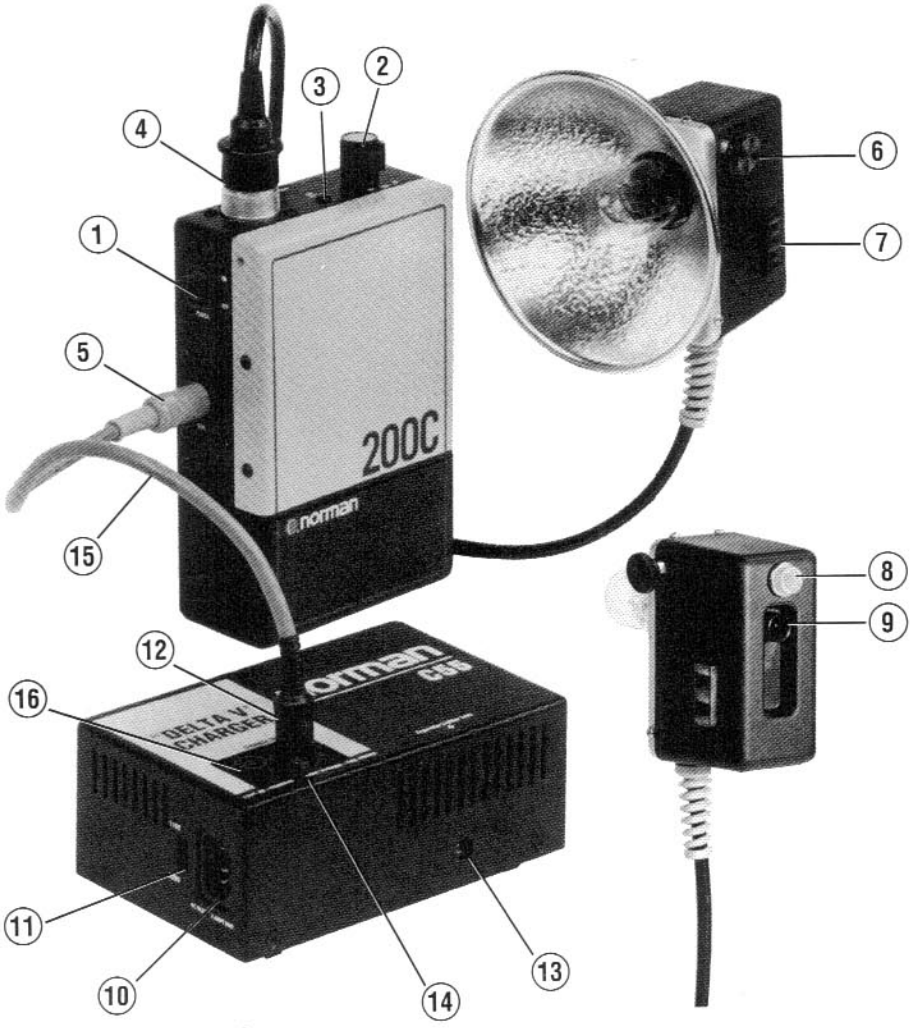
1. POWER Switch
2. 50/100/200 Control Switch
3. LOW BAT Indicator
4. Lamphead Connector
5. CHG Inlet

LAMPHEAD

6. Reflector Locking Screw
7. Sync Outlet
8. Ready Light
9. TEST Button

C55 "DELTA V" CHARGER

10. AC Inlet
11. 110/220 V Switch
12. CHARGE Outlet
13. AUTOMOBILE LIGHTER Inlet
14. Charge Indicator Light
15. R5002 Charge Cable
16. Fuse



SAVE THESE INSTRUCTIONS

IMPORTANT SAFEGUARDS

in accordance with UL 122 specifications for photographic equipment.

When using your photographic equipment, basic safety precautions should always be followed, including the following:

1. Read and understand all instructions.
2. Care must be taken as burns could occur from touching the modeling lamp.
3. Lamphead must be disconnected from power supply when inserting or removing flash tube or modeling lamp.
4. Do not operate the appliance with a damaged cord or if the appliance has been dropped or damaged until it has been examined by a qualified serviceman.
5. If an extension cord is necessary, a cord with a suitable current rating should be used. Cords rated for less amperage than the appliance may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
6. When practical, unplug the appliance from the electrical outlet when not in use. Never yank the cord from the outlet. Grasp the plug and pull to disconnect.
7. To avoid electric shock hazard, do not bypass the ground pin on the AC cord or use this appliance with an ungrounded electrical outlet or an ungrounded AC cord.
8. CAUTION - Do not operate outside in the rain or inclement weather or in the presence of standing water.

200C POWER SUPPLY INSTRUCTIONS

1. POWER Switch

Switches the power supply on or off. The power supply will not switch on unless the lamphead is connected. This prevents accidental battery drain during storage or transit.

The POWER Switch performs two additional functions in the OFF position:

1. Discharges the main storage capacitors so the circuit card can be safely removed for service.

2. Disables the trigger circuit so the camera can be operated without triggering the flash. This prevents having to disconnect the camera sync cord when the flash is not required, such as when making time exposures.

The side location of the POWER Switch makes it convenient to determine whether the unit is on; simply reach down and feel the switch position with your finger.

Using the POWER Switch to conserve battery power:

To conserve battery power it is suggested that the POWER Switch be left on when the periods between flashes are less than 10 minutes. For longer idle periods battery power is conserved by switching the unit off. The reason that power is lost when the switch is off during short idle periods is that the flash capacitors automatically discharge in the off position.

2. 50/100/200 Control Switch

Provides three power selections; 50 w-s, 100 w-s and 200 w-s. You can operate the switch as fast as you wish without damage to the circuit. The power change is instantaneous (unlike some units that require wasting one flash to complete the power change).

The rotary switch design eliminates the possibility of accidentally changing power positions by bumping the switch.

3. LOW BAT Indicator

Illuminates when the battery charge is low and about 10 flashes remain.

4. Lamphead Connector

Any Norman 450 Series lamphead can be utilized with this connector. However, it is important to note that studio lampheads are not equipped with a sync outlet. Hence, using an LH2 lamphead type is recommended. For additional information on lampheads, please refer to the LAMPHEAD INSTRUCTIONS (below).

5. CHG Inlet

The C55 "Delta V" Charger connects to the CHG Inlet on the 200C via an R5002 Charge Cable (included). 200Cs produced prior to May 1995 utilized the C4220 Thermomatic™ Charger.

IMPORTANT - Due to improvements in battery technology, the older style charger (C4220) has become obsolete and should not be used with this 200C which utilizes the B4124 "Super Battery".

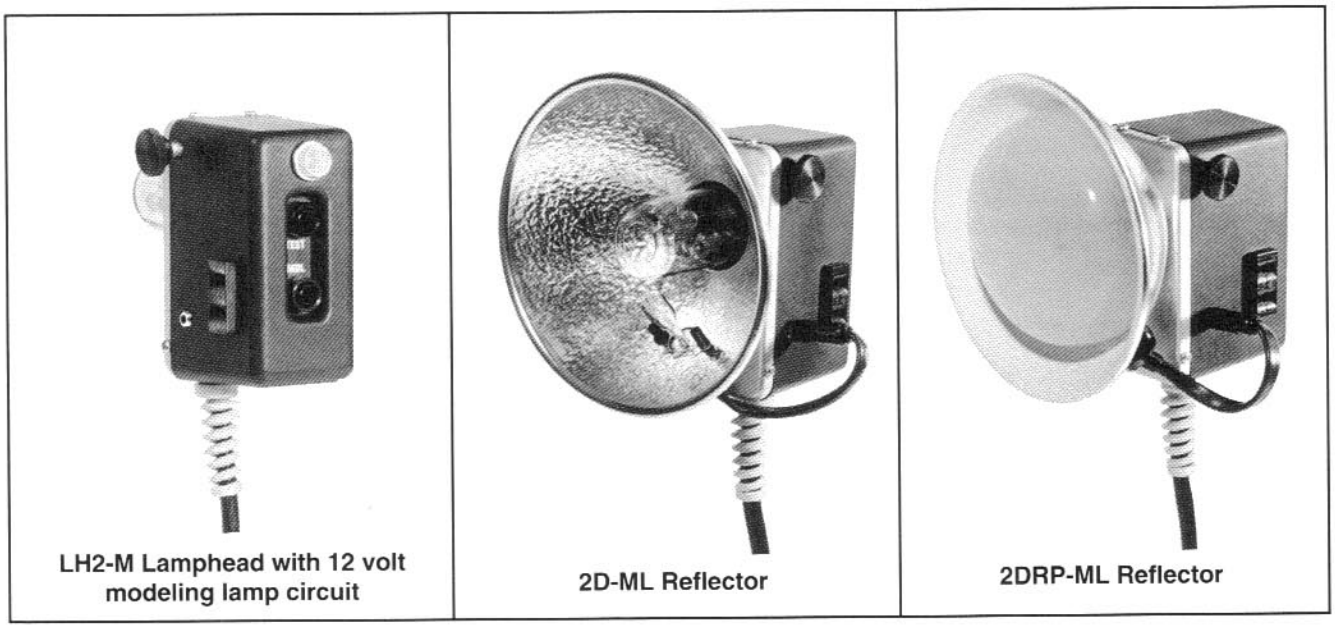
LAMPHEAD INSTRUCTIONS

Several lamphead models operate with the 200C system;

LH2K	Standard lamphead with 5' coil cord.
LH2-5	Similar to the LH2K, but has a 5' straight cord and 115 volt modeling lamp outlet for use with the 2Q modeling lamp umbrella reflector.
LH2	Similar to the LH2-5, but has a 20' straight cable.
LH2K-ML or LH2K-M	Both of these lampheads have 12 volt modeling lamp circuits for use on the 200C system. The LH2K-M is an improved later model.
LH2-LS	Custom "Light Sphere" bare-bulb lamphead.
LH3	Automatic Thyristor lamphead.

When using an LH2 lamphead type with a 115 volt modeling lamp reflector (2Q), use an R4153 AC extension Cable to operate the modeling lamp. The 200C automatically disables the 2-pin modeling lamp connector on the LH2, and the 12-volt battery would not have sufficient voltage to operate a 115-volt modeling lamp.

To be completely self-contained with battery power for the modeling lamp, you may wish to use the LH2K-M lamphead, as illustrated.



LH2-M Lamphead with 12 volt modeling lamp circuit

2D-ML Reflector

2DRP-ML Reflector

6. Reflector Locking Screw

Locks the reflector to the lamphead. To remove the reflector, rotate the locking screw about one turn counter-clockwise and pull the reflector.

7. Sync Outlet

Connects to the camera sync cord for triggering the flash. Cord polarity is important to prevent lamphead misfires. To establish the correct polarity, match the wide blade on the Sync Outlet with the wide blade on the camera sync cord. Numerous manufacturers make camera sync cords. A small number of them may be wired in reverse polarity. If this happens, the male plug on the sync cord would need to be connected backwards.

8. Ready Light

Illuminates when the unit is ready to flash.

9. TEST Button

Push to trigger the flash. Used for test purposes and for open flash photography. This 200C system includes an improved version of the LH2 that has a recessed TEST Button that prevents accidental triggering.

C55 "DELTA V" CHARGER

Nickel Cadmium battery technology has changed. The battery can no longer be trickle charged which has obsoleted Norman's C4120 and C4220 Thermomatic™ battery chargers. Hence, this assembly includes the B4124 "Super Battery" and C55 "Delta V" Charger. Advantages of this technology over the previous model are:

25% more battery capacity - Utilizes "Super" Sub-C cells which are about 1/4" longer than the standard Sub-C battery cell.

Longer battery life, longer retention of battery charge during storage.

No memory effect - The unique cell construction has superior gas absorption and higher capacity which virtually eliminates "memory effect".

C55 Charger with R5200 Automobile Lighter Cable

To take advantage of the first two benefits (above) the "Super Battery" must be charged on a C55 "Delta V" charger. The older Thermomatic™ charger causes the battery temperature to rise which prevents the battery from receiving a full charge and it shortens battery life. If using the older Thermomatic™ charger, battery deterioration can be minimized by disconnecting the charger from the CHARGE Outlet within 30 minutes after the charge light goes out.

The C55 "Delta V" Charger utilizes an integrated circuit that computerizes the charging process to provide a full charge without heating the battery. The green LED on the charger will illuminate to indicate that the battery is in the "Charge Mode" and it will blink continuously at full charge to indicate that the charger has shifted to the "Maintenance Mode". The charge time, from dead to full is about 3.5 hours (note – the battery does not need to be "dead" to recharge, charging can be done at anytime). In the Maintenance Mode, the charger switches on momentarily as the battery requires an additional charge and it can be left on this mode continuously without causing damage to the battery. **WARNING – PREVENT CHARGER DAMAGE – REMOVE AC POWER BEFORE CONNECTING BATTERY CHARGE CABLE TO THE BATTERY CHARGE OUTLET.**

10. AC INLET

Connects the AC Power Cable to the charger. The AC input voltage can be either a standard 110 volt or 220 volt household circuit, 50-60 Hz.

IMPORTANT

1. Before connecting the AC Power Cable, check to see that the 110/220 Volt Switch is set to correspond with the incoming AC line voltage.
2. Do not use the AC Power Cable (R4157) with Norman AC-operated power supplies, as the wire size is small (for compactness) and insufficient for high-current usage.

The R4157 AC Cable (included) is a light-duty compact cord. It is gray in color to make it easily distinguished from the heavy-duty black AC cables that are utilized on Norman power supplies.

11. 110/220 Volt Switch

Enables the C55 "Delta V" Charger to operate on 110 or 220 volts. Before operating the charger, be sure that the 110/220 Volt Switch is set to match the incoming AC line voltage (generally 110 volts in the USA and generally 220 volts in Europe).

12. CHARGE Inlet

Connects the Charge Cable to the Charger and to the 200C Power Supply. The Charge Cable is part number R5002 (included) for the 200C. Optional cables are available for use with other power supplies.

13. AUTOMOBILE LIGHTER Inlet

Enables the C55 "Delta V" Charger to operate from a standard 12 volt DC automobile lighter. Requires the use of an R5200 Automobile Lighter Cable (not included). Connect the $5200 Cable to the AUTOMOBILE LIGHTER Inlet and to an auto lighter socket on the Charger.

The 200C and C55 "Delta V" Charger should be situated in a manner that prevents them from making contact with the metal chassis of the vehicle. If contact is made the charger will automatically switch off and the Charge Indicator Light will extinguish. The charge time is about 3.5 hours whether on AC or on 12 volts DC.

14. Charge Indicator Light

Illuminates green continuously during the charge cycle. Blinks continuously at full charge. If the Charge Indicator Light is off, either the charger is disconnected, AC power is off, or the fuse is blown.

15. R5002 Charge Cable

Connects to the CHARGE Outlet on the C55 "Delta V" Charger and to the CHG Inlet on the 200C power supply. It is suggested that the Charge Cable be connected prior to connecting the charger to AC power. This prevents possible sparking at the connector.

Optional cables include the R5001 for use with the 200B model. In addition, the optional C55x2 "Delta V" Charger, R5005 "Y" Cable, and External Battery Charging Tub-2, which enables two batteries to be charged simultaneously, as illustrated below.

16. FUSE

Protects the charger in the event of a circuit overload. The part number of the fuse is 2AG, 1/2-amp. If replacement fuses continue to blow, the charger requires service.

AC OPERATION

Using the battery charger as an AC adapter has become a common practice. In this situation, the power supply is actually operating from the battery while the charger simultaneously charging the battery. This mode of operation is not practical with the "Delta V" charger because the charger will shift to the Maintenance Mode thereby preventing it from charging at a rate that is fast enough to keep up with the discharge of the battery. However, using the unit in this mode will not cause harm to the system.

Notice - The green LED on the charger should illuminate continuously. If it is in the blinking mode, disconnect and reconnect the charger AC cable to reset the charge circuit.

TUB-2 DUAL BATTERY CHARGING

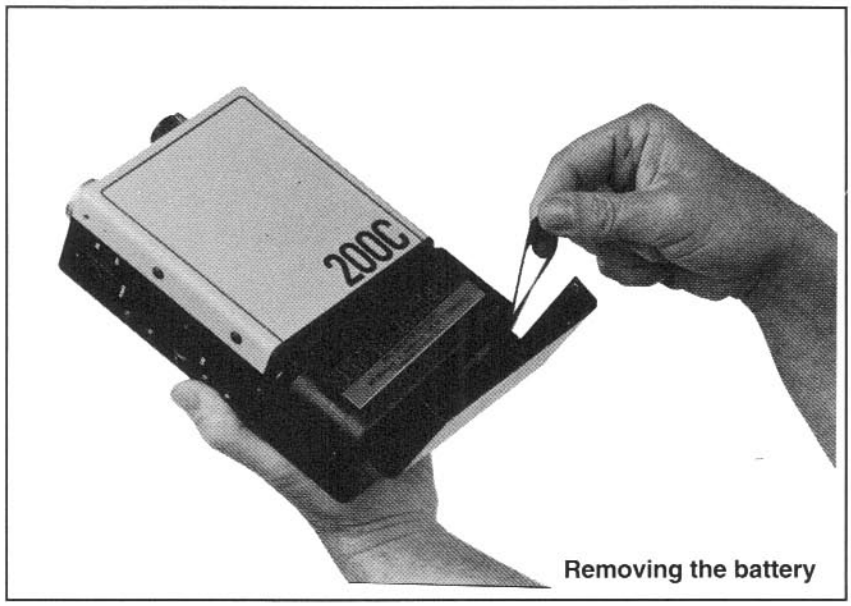
Charges one or two 200C (B4124) batteries outside the power supplies. Requires C55X2 charger for two batteries.

BATTERY CARE

To remove the battery, open the compartment door, pull the ribbon and extract the battery, as illustrated.

It is best to store the "Super Battery" at room temperature. It does not matter whether it is left on the C55 "Delta V" charger. Leaving the battery on a C4220 Thermomatic™ Charger will cause battery heating which shortens battery life.

Do not freeze the battery, as this will cause permanent damage. Do not store in hot locations, such as a trunk of an automobile, as this will shorten battery life and cause the battery to discharge. When it is necessary to store the battery in a hot location, it is best to place it in an insulated compartment, such as in a Styrofoam ice chest. Use a frozen plastic module, as opposed to ice, to reduce the risk of moisture damage to the battery. When using an ice chest, it is advisable to protect the battery from moisture by wrapping the unit in a dry towel or other suitable material.



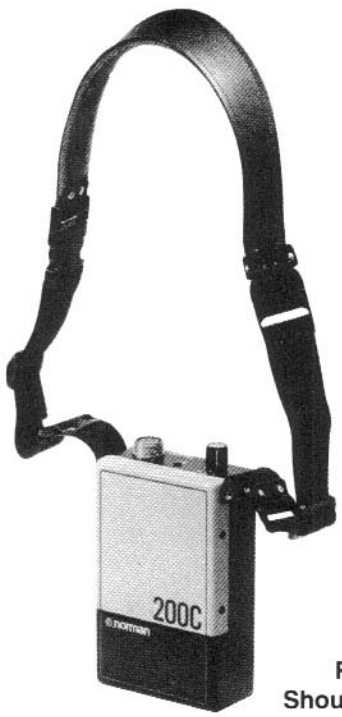
Removing the battery

ATTACHING THE IMPROVED R4127 CONTOUR SHOULDER STRAP (included)

Align the strap so that the shoulder pad curves toward the shoulder when the 200C is worn with the chassis lid facing outward.

Attach the strap to the 200C with the supplied hardware (four 6-32x3/8" screws and four #6 flat washers), as illustrated.

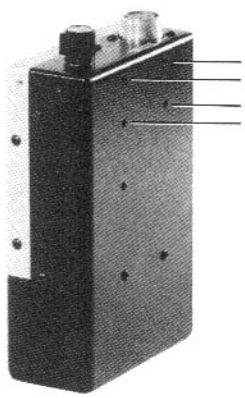
The shoulder pad section is removable via two quick-disconnect couplers. One coupler is "male" and the other one is "female" so that they can be connected together without the pad. This shortens the strap for conveniently hanging the 200C on a light stand.



R4127
Shoulder Strap

ATTACHING THE R4122 CONVERT-A-BELT AROUND THE WAIST (not included)

Some photographers prefer to wear the 200C around the waist. This can be done with the optional R4122 Convert-a-Belt. Attach the belt to the 200C with the supplied hardware, as illustrated.



R4122
Waist Belt

200C SPECIFICATIONS			
Power (watt-seconds)	50	100	200
ISO 100 Guide Numbers			
REFLECTORS			
Bare bulb (none)	30	42	60
2D Standard	70	100	140
2D-RP Soft	45	63	90
2H Telephoto	250	350	500
2Q Umbrella	70	100	140
Recycle time to 70% (seconds)	4/10	8/10	1-1/2
Flashes per charge	800+	400+	190+
200C weight (w/battery) 3.7 lbs.			

SAVE THESE INSTRUCTIONS

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(PUB. NO. 200C 6-00)

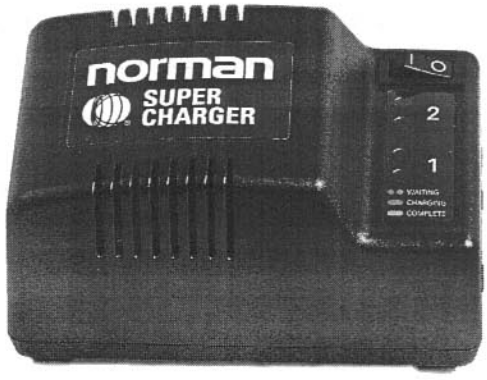
OPERATING INSTRUCTIONS

Norman Super Charger

For The 200C & 400B Battery Portable Flash Systems.

The new Norman Super Battery Charger replaces the "Delta V" C55 Single Charger and the C55X2 Dual Charger.

The advantages of this new technology over the previous chargers are faster charging, two batteries can be charged from an automobile cigarette lighter, and the new unit is considerably easier to use.



Left Side View

Right Side View

Quick reference charger instructions are on a label on the bottom of the unit, and for convenience, repeated here:

Charger Instructions

See manual for detailed operating instructions.

Starting Charge

1) Turn off power switch.
2) Attach batteries and charging cable to charger. **If only one battery is used it MUST BE IN CHANNEL 1.**
3) Turn on power switch.
4) Channel 1 will remain solid red, channel 2 will continue to blink until channel 1 is completely charged, then channel 1will turn green and channel 2 will become solid red.
5) After charge is complete, remove power and then remove the batteries.
6) To start a new charge, power must be cycled.

Red blinking - waiting to charge.
Red solid - channel charging.
Green solid - channel charging complete.

AC Inlet

Connects the AC Power Cable to the charger. The AC input voltage can be either a standard 110 volt or 220 volt household circuit, 50-60 Hz.

IMPORTANT

1. Before connecting the AC Power Cable, check to see that the 115/230 Volt Switch is set to correspond with the incoming AC line voltage.
2. Do not use the AC Power Cable (R4157) with Norman AC operated power supplies, as the wire size is small (for compactness) and insufficient for high-current usage.

The R4157 AC Cable (included) is a light-duty compact cord. It is gray in color to make it easily distinguished from the heavy-duty black AC cables that are utilized on Norman power supplies.

115/230 Volt Switch

Enables the Super Charger to operate on 115 or 230 volts. Before operating the charger, be sure that the 115/230 Volt Switch is set to match the incoming AC line voltage.

CHARGE Outlet

Connects the Charge Cable to the Charger and to the batteries or power supply. Optional cables are available for use with the batteries and power supplies.

CIGARETTE LIGHTER Inlet

Enables the Super Charger to operate from a standard 12 volt DC automobile cigarette lighter. Requires the use of an R5200 Auto Cigarette Lighter Cable (not included). Power is 12 volts DC at 3 amps. To operate, connect the R5200 Cable to the CIGARETTE LIGHTER inlet and to an auto lighter socket. The power pack and Super Charger should be situated in a manner that prevents them from making contact with the metal chassis of the vehicle. If contact is made the charger will automatically switch off and the Charge Indicator Light will extinguish.

Charge Indicator Lights

The Super Charger charges channel 1 and then channel 2. If only one battery is used, it must be used in channel 1. In the 400B, channel 1 is the short cable in the lid. Red Blinking = Waiting to charge. The charger will be in this state if there is no battery, channel 2 will be in this state if channel 1 is charging, or the battery is at an unsafe charging voltage (voltage too low), the charger will slowly bring the voltage up to a safe charging level. Red Solid = Channel is charging. Green Solid = Channel is complete. The charger can be left on continuously without causing damage to the battery. The charge time is about three hours for two batteries, AC or DC.

FUSE

Protects the charger in the event of a circuit overload. The part number of the fuse is 802-1910, 2amp. If replacement fuses continue to blow, the charger requires service.

SPECIFICATIONS

Height - 3 1/2"
Length - 6 1/4"
Width - 4 1/2"
Weight - 3 lbs.

Supplement for Norman Battery Portable Systems
With Built-in PocketWizard™ Transceivers

The following Norman products are equipped with built-in PocketWizard™ radio transceivers:

A200CR	200 watt-second kit
A200CR-M	A200CR with modeling light option
A400BR	400 watt-second kit
A400BR-M	A400BR with modeling light option

LH2KR	Lamphead for use with existing 200B or 200C
LH2KR-M	Same as LH2KR with modeling lamp option
LH52KR	Lamphead for use with existing 400B
LH52KR-M	Same as LH52KR with modeling lamp option

These products incorporate a built-in transceiver which is internally wired for simple operation. No external module, cables or batteries are required.

Operation

A PocketWizard™ enabled battery portable lamphead can be set to any channel available on PocketWizard Plus™ or MultiMAX™ transmitters. Changing channels on the lamphead requires turning on the power supply and actuating the “learn” button on the back of the lamphead (this button is recessed and a pen tip or similar tool will be needed to access it). Within 30 seconds, press and hold the “test” button on a PocketWizard™ transmitter set to the required channel. The battery portable will flash once to confirm it has learned the new channel.

Once a channel has been set, the system will retain that value even if the power supply is turned off. Repeating the above procedure is only required to select a new channel.

As a transceiver, the Norman system will confirm a signal has been received and accepted by sending a return signal to a compatible MultiMAX™ transceiver. The MultiMAX™ can be set for audible flash confirmation and misfire notification.