## battery-related products

## J1 LOW VOLTAGE DISCONNECT SWITCHES

## SureStart ${ }^{\text {tw }}$ Compact Low Voltage Disconnect Switch



## 48513 Compact LVD <br> 48513-01 LVD \& Harness <br> 12804 Harness

12 or $24 \mathrm{~V}, 125 \mathrm{~A}$ at $60^{\circ} \mathrm{C}, 100 \mathrm{~A}$ at $85^{\circ} \mathrm{C}$

Electronically senses battery voltage and conserves starting power. Automatically disconnects and reconnects loads based on battery condition; no operator action is required to protect the batteries. Prolongs battery life by preventing damage due to excessive discharge.

Eliminates the need for both separate timer or voltage sensing delay relay devices and high current relay or solenoid, and simplifies wiring and installation. Small size and lightweight design means easier and more discrete mounting, to use space more efficiently, eliminate hardware, and give better routing of wires.

When battery voltage falls below programmed voltage setting for 2 minutes non-critical loads are automatically disconnected. Waterproof and dustproof to IP67 international standard. (Submersible to 3 feet.) Sealed connector makes it ideal for harsh environments. Advanced technology enables a robust product in a small lightweight package. Programmable timer feature automatically disconnects loads after key off, regardless of battery condition. 12804 Harness fits this LVD.

## Specifications

$4.5^{\prime \prime} \mathrm{W} \times 4.3^{\prime \prime} \mathrm{L} \times 3.1^{1 \mathrm{H}} \mathrm{H}(114.3 \times 108.6 \times 79.0 \mathrm{~mm})$.
Operating Temperature Range: $-40^{\circ}$ to $+85^{\circ} \mathrm{C}\left(-40^{\circ}\right.$ to $\left.+185^{\circ} \mathrm{F}\right)$.
100 A at $85^{\circ} \mathrm{C}, 125 \mathrm{~A}$ at $60^{\circ} \mathrm{C}$.
Ingress Protection: IP66 per IEC 529.
Humidity: 0 to $90 \%$ RH.
Vibration: 10-500 Hz per SAE J1455.
Shock and Thermal Shock: per SAE J1455.
Inductive Transient: +/- 600V per SAE J1455.
Load Dump: + 100V per SAE J1455.
Battery Terminal Torque: 50 in-lbs max.
Operating Voltage: 9V min, 12 V typical, 16 V max if used with 12V DC systems.
Disconnect Voltage: 12.05 V min, 12.1 V typical, 12.15 V max When voltage drops below 12.1V, system activates the alarm for one minute and then disconnects loads.
Quiescent Current: 1mA typical, 2mA max. Circuit operating current.
Load Current: 100 A at $85^{\circ} \mathrm{C}, 125 \mathrm{~A}$ at $60^{\circ} \mathrm{C}$.
Overcurrent Protection: 150A. System will disconnect load and sound alarm after 5 seconds of excessive current.
Key-Off Ttimer: 5 minutes minimum, 15 minutes typical. Option feature. After key off, unit will wait a set time before activating alarm. One minute later loads are shut off.

## SureStart™ Automatic Low Voltage Disconnect Switch

Ensures ample starting capacity and prolongs battery life. Automatically disconnects non-critical loads from a battery when the battery voltage falls below a predefined threshold. Automatically reconnects the loads to the battery when it is being charged. Manual override permits a user to make or break the connection, regardless of battery voltage. Overcurrent, short-circuit and over-temperature protection.


No more stranded vehicles! Avoid the time and expense of getting your vehicles towed. The SureStart ${ }^{\text {TM }}$ LVD ensures there's enough power to start, and saves the batteries on vehicles that aren't used every day.

## Specifications

$6.0^{\prime \prime} \mathrm{L} \times 5.1^{1 \mathrm{~W}} \times 3.0^{\mathrm{OH}} \mathrm{H}(152.4 \times 130.2 \times 76.2 \mathrm{~mm})$.
Environmental: $-40^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$. SAE J 1455 \& J 1113 .
Electrical: 150A or 200A continuous. Inrush: 500A (for 5 seconds). 2 mA max quiescent current. Ignition-proof to ISO 8846.
Disconnects when battery drops below 12.1 V for 2 minutes, reconnects when battery meets or exceeds 13.0 V for 10 seconds. (Factory programmable).
Alarm: Active low, 50mA.
Activates 1 minute before disconnect. (Factory programmable) Accuracy: $\pm 100 \mathrm{mV}$.
Electronics sealed to IP67.


## LVD Accessories

## 58036-06 Rocker Switch

Mom On-Off-On SPST switch for use with LVDs. Uniform with series 58031 \& 58332 switches on page 4 . Use with 48513.

## 12804 Harness

Harness kit (Deutsch connector \& wires) fits 48513 Compact LVD.

## 40205 Milliamp Rocker \& Alarm

Digital switch with piezo alarm. Use with 48510 and 48512.

## Inactive Vehicles

If you leave a fully charged battery connected in an inactive vehicle it could be dead in as little as two months. Today's vehicles have electronics that continue to draw small quiescent currents to maintain their memory, even when the vehicle is off. Over an extended time even this small current can kill an uncharged battery. Complete discharge of the battery can cause permanent damage by building up insoluble sulfur crystals on the lead plates, which prevent proper battery recharging.

Strategies for protecting your battery. Fully recharge the battery before storing the vehicle.

If you need short term storage and you have a lot of electronics that do not have to be on: (computer, TV, stereo, etc.) hook them up via the Low Voltage Disconnect (page 103). Each time you shut off your vehicle these items will be disconnected from the battery. This lengthens the storage life of your battery.

If you do not have a power source where the vehicle is stored, install a master disconnect switch between the battery and the electrical system. Turing this off eliminates any quiescent loads and lengthens the storage life of your battery. All batteries have a self discharge rate - they will slowly discharge even when disconnected. If you have power at the storage site, install a set of exterior battery jumper studs (page 95) and hook the vehicle up to a good three stage charger. That will keep you battery in good health for a long life.

## J2 MASTER DISCONNECT SWITCHES

## 75920 Single Pole Master Disconnect

## NEW



Protects vehicles against tampering, theft and battery drain. Protects from hazards during vehicle servicing, and can be locked-out or tagged-out. Provides an effective emergency power cutoff.

High amperage capacity: 300A at 12V DC. Can be used in both positive or in negative path applications. Waterproof and dustproof to IP67 (immersible). Switch can be located in the best location, regardless of environment. Composite engineered polymer housing will not rust or corrode. Tested per SAE 1455 for salt corrosion. Large red knob is easy to operate with gloved hands; $90^{\circ}$ switch travel makes it easy to identify the switch position. Built-in lockout satisfies OSHA requirements for an energy isolation device. Attractive styling suitable for visible mounting close to operator. Large divider on base prevents accidental shorting of high energy cables. Fits standard Master Disconnect mounting pattern. Knob is secured in place with a set screw.


## Performance of the 75920



Performance graph (Duration vs. current) of the Cole Hersee 75920 and some competitive marine switches.
Horizontal axis: Time. From continuous (maintained) current (on the left) down to one second (on the right).
Vertical axis; Current withstood by a given switch for the duration noted along the horizontal axis.

## Specifications

Operating temperature range: -40 to $85^{\circ} \mathrm{C}$.
Ingress protection rating: IP67.
Corrosion test: 96 hours salt spray test to ASTM standard.
Vibration test: 10-500Hz to SAE J1455.
Shock test: To SAE J1455.
Torque, Battery terminals: 5/16" $-24,70-90$ in-lbs ( $8-10 \mathrm{Nm}$ ).
Torque, Mounting hardware: $3 / 4^{\prime \prime}-16$, 18 ft -lbs max ( 24.4 Nm ).
Operating voltage: 6 V min, 36 V max.
Continuous current: 300A max at $12 \mathrm{~V}, 250 \mathrm{~A}$ max at $24 \mathrm{~V}, 200 \mathrm{~A}$ max at 36 V .
Intermittent current: 1000A at $12 \mathrm{~V}, 90 \mathrm{sec}$ on, 5 min off; 1500 A at $12 \mathrm{~V}, 60 \mathrm{sec}$ on, 5 min off; 2000 A at $12 \mathrm{~V}, 30 \mathrm{sec}$ on, 5 min off; 3000 A at 12 V , 15 sec on, 5 min off.

## Single Pole

Two positions: Off-On. For 6-36V DC systems. Will disconnect the battery circuit only.
Electrical Ratings (unless noted):
1000A intermittent, 175A continuous.
UL Listed 707B: 800A intermittent, 175A continuous.
UL Listed 375M: 250A at 6V, 125A at 12V intermittent; 40 A at $6 \mathrm{~V}, 20 \mathrm{~A}$ at 12 V continuous.
Electrical ratings on UL labels are conservative.

## With Diecast Lever

## 2484-16

Mounting stem: Brass, $3 / 4^{4}-16$ thread, $23 / 32$ " ( 18.3 mm ) long. Fits panels up to $3 / 16^{\prime \prime}(4.8 \mathrm{~mm})$ thick. Terminals: Two $3 / 8^{\prime \prime}$ -24 studs. Case: Plated steel. Contacts: Silver.


## 2484-A

Same as 2484-16, but without UL label.

## 2484-09

Same as 2484-16, but with copper contacts, and without UL label.

## 2484-06

Same as 2484-16, but without UL label, and with weatherresistant with 0 -ring seal in operating shaft, gasket-sealed terminal insulation and sealant in mounting stem and case.

## 2484

Same dimensions as 2484-16, but with copper contacts and ratings.

## Waterproof

Some manufacturers claim that their switches are 'waterproof'. We, on the other hand, maintain that 'waterproof' refers only to an article that is specifically intended to function underwater. You'll find that many of our switches are designated 'weather-resistant', meaning that they are designed to function reliably in an environment that may be damp, perhaps subject to being splashed with salt spray, etc. These weather-resistant switches are also a good choice for dusty environments, such as those encountered in agriculture and construction.

## M-284-01 Long Stem, Brass Case

Mounting stem: Brass $3 / 4$ " -16 thread ( 19.1 mm ), 1 13/32" $(46.1 \mathrm{~mm})$ long. Fits panels up to $15 / 16^{\prime \prime}(23.8 \mathrm{~mm})$ thick. Terminals: Two $3 / 8$ " $(9.5 \mathrm{~mm})$ diameter studs. Actuator: Chrome-plated lever. Silver-laminated contacts.


## M-284

Same as M-284-01, but with copper contacts, and without UL label.

## M-284-A

Same as M-284-01, but without UL label.

## M-284-02 Weather-Resistant

Same as M-284-01, but with 0-ring seal in operating shaft, gasket-sealed terminal insulator and diecast lever with protective dichromate finish, and without UL label.
Also available with faceplate (M-284-09BP)

## M-288 50 Amps

Rated at 50 A at 14 V DC. Mounting stem: $5 / 8^{\prime \prime}(15.9 \mathrm{~mm})$ diameter, $3 / 4^{\prime \prime}(19.1 \mathrm{~mm})$ long. Fits panels up to $17 / 32^{\prime \prime}$ ( 13.5 mm ) thick. Terminals: Two $10-32$ brass screw terminals. Actuator: Diecast lever. Contacts: Silver. Case: Plated steel.


75908 2000A Intermittent, Weather-Resistant


Disconnects battery circuit only. Electrical rating: 2000A intermittent. 30 seconds $0 \mathrm{n}, 3$ minutes Off, 300A continuous. Mounting stem: $3 / 4^{\prime \prime}-16$ thread. Fits panels up to $1 / 4^{\prime \prime}(6.4 \mathrm{~mm}$ ) thick. Terminals: Two $1 / 2^{\prime \prime}-20$ copper studs. Case: Plated steel. Sealing: sealed between shaft and mounting stem; case and terminal insulator.

## MASTER DISCONNECT SWITCHES

## With Hencol Lock

## 2484-02

Mounting stem: Brass, 3/4"-16 thread 17/32" (13.5mm) long. Fits panels up to $1 / 4^{\prime \prime}(6.4 \mathrm{~mm})$ thick. Terminals: Two $3 / 8^{\prime \prime}-24$ studs. Plated steel case, silver-laminated contacts. Hencol lock and 2 keys. Indexing pin.


## 2484-03

Same as 2484-02, but with 0-ring seal in the operating shaft.

## 2484-19 Weather-Resistant

Same as 2484-02, with gasket-sealed terminal insulator and with 0 -ring seal in operating shaft.

## Double Pole

Two positions: Off-On. For 6-36V DC systems. Will disconnect the battery and the alternator or generator field circuit. Electrical ratings: Large studs: 1000A intermittent. 15 seconds On, 5 minutes Off. 125A continuous (unless noted). Small studs: 20A continuous.

## With Diecast Lever

## 75903 Steel Case

Chrome-plated diecast lever. Plated steel case. Brass contacts. Brass mounting stem 3/4" -16 thread 23/32" (18.3mm) long. Fits panels through $3 / 16^{\prime \prime}$ ( 4.8 mm ) thick. Two $3 / 8^{\prime \prime}-24$ and two 10-32 studs.


## 75904 Steel Case, Silver Contacts

Same as 75903, but with laminated silver contacts.

## M-289 Brass Case

Chrome-plated diecast lever. Brass contacts. Brass mounting stem 3/4" -16 thread $113 / 32$ " ( 46.1 mm ) long. Fits panels through 15/16"


## Standards

Cole Hersee makes switches and connectors that meet industry standards, generally understood to be those of the SAE and the automotive industry. Many of our switches meet other standards as well, such as USCG, ABYC, US Mine Safety \& Health Administration. For OEMs we can design a switch to meet or exceed any standard.

For over a century, Underwriters' Laboratories (UL) has been a third-party trusted source worldwide for product compliance.

Having the UL mark on our products means that UL has tested and evaluated representative samples of that product and determined that they meet the stringent UL requirements. Products are continually checked by UL to make sure they continue to meet those requirements - UL inspectors visit the Cole Hersee factory every quarter to check on certified products. UL marks may be only used on products certified by UL and under the terms of a written agreement between UL and Cole Hersee.

Visit the UL website, www.ul.com where you can find us listed under 'Cole-Hersee'.

UL certified products are accepted in the US and Canada by OSHA, insurance companies, labor unions, fire officials and electrical inspectors.
(U) The UL Listing Mark

One of the most common UL Marks, found on many Cole Hersee products. It means UL found that samples of this product met the UL safety requirements that are primarily based on UL's own published Standards for Safety.


The UL Marine Mark
These products have been tested specifically for marine use, and have been evaluated to UL's published Marine Safety Standards and other applicable standards and codes. These requirements specifically relate to hazards that can occur as a result of exposure to harsh marine environments - vibration, impact, ignition protection, water ingress and salt spray corrosion common on pleasure craft and boats.

Many of our marine switches also conform to applicable ABYC and USGC standards.

American Boat \& Yacht Council: www.abycinc.org United States Coast Guard: www.uscg.mil

We provide UL certification because our customers may be mandated to install UL-marked products. There are costs associated with UL certification and ongoing testing and auditing, and therefore UL-labeled switches may be slightly more expensive than their unmarked counterparts.

## C The CE Mark

The CE mark is a European mark analogous to UL. It similarly denotes that a product has undergone assessment procedures complies with European standards that apply to the product. The designation "CE" is French for "Conformité Européen

## M-290 Brass Case, Silver Contacts

Same as M-289, but with laminated silver contacts.

## M-290-01

Same as M-290, but with 0-ring seal in operating shaft.

## M-290-05 UL Listed

Brass case. Silver laminated contacts. Chrome-plated diecast lever. Brass mounting stem $3 / 4^{4 \prime}-16$ thread $113 / 32^{\prime \prime}(46.1 \mathrm{~mm})$ long. Fits panels through $15 / 16^{\prime \prime}(23.8 \mathrm{~mm})$ thick. Two $3 / 8^{\prime \prime}-24$ and two 10-32 studs.


## 75904-01 Weather-Resistant,

 with Indexing Pin and 0-RingDiecast lever. Plated steel case. Silver-laminated contacts. Brass mounting stem $3 / 4^{\prime \prime}-16$ thread $17 / 32^{\prime \prime}(13.5 \mathrm{~mm})$ long. Fits panels through $1 / 4^{\prime \prime}\left(6.4 \mathrm{~mm}\right.$ ) thick. Two $3 / 8^{" 1}-24$ and two $10-32$ studs. 0 -ring seal in the operating shaft, and gasketsealed terminal insulator.


75907 2000A Intermittent, Weather-Resistant Electrical ratings: Large studs: 2000A intermittent, 30 seconds On, 3 minutes Off. 300A continuous. Small studs: 20A continuous. Plated steel case. Chrome-plated diecast lever. Mounting stem $3 / 4^{\prime \prime}-16$ thread, fits panels through $1 / 4^{\prime \prime}(6.4 \mathrm{~mm}$ ) thick. Two 1/2"-20 copper and two 10-32 studs. Sealed between shaft and mounting stem, and case and terminal insulator. With indexing pin.

Also available as single pole (75908).


## For Two High Current Loads

## 75912

Electrical ratings: 125A continuous, 750A intermittent; 15secs On, 5 min Off. Up to 36 V DC max, carry only. Silver contac surfaces. Both poles are separately insulated. Four $3 / 88^{-24}$ studs. Lockwasher and two brass hexnuts per stud are provided. 3/4" -16 brass mounting stem. Operating temperature range: $-40^{\circ}$ to $85^{\circ} \mathrm{F}\left(-40^{\circ}\right.$ to $29^{\circ} \mathrm{C}$ ). 0 -ring seal in mounting stem; gasket seal at terminal insulator. Epoxy seal at case, mounting stem and locating pin. Heavy duty plated steel case. With indexing pin. Mounting torque 20ft lbs ( 27 Nm ); stud torque 4.4 to 7.4 ft lbs ( $6-10 \mathrm{Nm}$ ).


## With Hencol Key

## 75904-02

Two Hencol keys. Plated steel case. Silver-laminated contacts. Brass mounting stem $3 / 4^{4}-16$ thread $17 / 32$ " ( 13.5 mm ) long. Fits panels through $1 / 4^{\prime \prime}(6.4 \mathrm{~mm})$ thick. Two $3 / 8^{\prime \prime}-24$ and two $10-32$ studs. With indexing pin.


## Pilot Lights

See page 111.


## J3 BATTERY SELECTOR/ MASTER DISCONNECT SWITCHES

For any vehicle that needs to use two batteries where one battery is used for starting the engine, while the other is used to power auxiliary loads. This is a common situation in trucks, boats, $R \mathrm{~V}$ s, police and rescue vehicles, and in ambulances and fire equipment. See wiring diagrams, on page 95.

## M-750 Basic Switch

(1.) C


## M-751 With Keys



## Back of Switch



Model M-754 is shown. The three small terminals in the middle are for connection to the pilot light circuit.

Models M-752 and M-753 have two small terminals in the middle marked F1 and F2 for connection to the Alternator Field Disconnect circuit.

M-750 and M-751 have no small terminals in the middle. Full wiring instructions are included.

A selector switch allows use of the first battery, the second battery, or both batteries simultaneously. This provides back-up starting power in an emergency. Either or both batteries can be selected for energizing.

These switches combine the functions of Battery Selector and Master Disconnect Switches to give four battery power options:

- Power cut off at the source.
- Power On, Battery 2.
- Power On, Battery 1.
- Power On, both Batteries.

Battery selector switches provide a positive battery disconnect, which has many advantages:

- It gives a reliable shutdown of power during maintenance.
- The version with the key protects against theft of the vehicle, when unattended.
- It helps protect against electrical fires, when the vehicle is not in use, and minimizes battery drain.


## Electrical Ratings

Labeled UL 707B. Rating: 500A intermittent, 310A continuous, 6-36V DC
Electrical ratings on UL labels are conservative. Use with either alternators or generators. Make before break design permits operation through the three On positions with the engines running. Engines should always be shut down before turning to Off. Wiring instructions are included.

## Heavy-Duty Construction

Vaporproof, weather-, dust- and corrosion-resistant. Durable, fracture-resistant high temperature plastic case, knob and insulator. Switches conform to USCG section 183.410 for ignition protection. Resistant to impact, and temperature extremes.

Heavy duty copper stud terminals, with brass hexnuts. Can be surface mounted, or installed through a $35 / 16^{\prime \prime}$ diameter hole in the panel. Dimensions: Flange: 6 " (152.4mm) diameter, overall height $25 / 8^{\prime \prime}$ ( 66.7 mm ). Terminals: 3 copper studs, 3/8" (9.5mm) diameter.

Eight Models For Every Application:

| MODEL | Lock | AFD | Pilots | Pilot <br> Circuit |
| :--- | :---: | :---: | :---: | :---: |
| M-750 |  |  |  |  |
| M-751 | $\checkmark$ |  |  |  |
| M-752 |  | $\checkmark$ |  |  |
| M-753 | $\checkmark$ | $\checkmark$ |  |  |
| M-754 |  |  |  | $\checkmark$ |
| M-754-01 |  |  | $\checkmark$ | $\checkmark$ |

Lock: With key lock and two keys.
AFD: Alternator field disconnect circuit switch. Prevents possible alternator diode failure if the switch is accidentally turned to Off with the engines running.
Pilots: Supplied with two separate green pilot lights PL-118-GC001

Pilot Circuit: With pilot indicator light circuit.

## J battery-related products

## J4 BATTERY ISOLATORS

For vehicles with two batteries, these devices electrically isolate the batteries to prevent the battery with the higher charge from draining into that with the lower charge. In addition, both batteries can be charged simultaneously from one source. Use general purpose Battery Isolators for 12-36V DC negative ground systems ( 48051 is for 12V DC only). The electronic components are embedded to give excellent protection from adverse conditions, such as contamination and vibration. The integral heat sink provides efficient heat dissipation. The amp rating of each item is the maximum alternator rating. For wiring instructions, see page 96.
Most alternators on new vehicles have an integral electronic voltage regulator that requires the use of the 4-stud battery isolator. The small 4th stud is for connection to a circuit switched by the ignition switch. The newer alternators were first introduced by Delco and are therefore sometimes called 'Delcotron-type alternators'. A 4-stud battery isolator can be used with older pattern alternators (in this case the 4th stud will remain unconnected), but a 3-stud battery isolator cannot be used with the Delcotron-type alternator.

Battery isolators also have a 'per leg' rating which indicates the maximum current it can deliver to either battery. All Cole Hersee battery isolators have a per leg rating equal to half the alternator rating. Thus a 48092 with a rating of 90 A has a per leg rating of 45 A per leg.

## Smart Battery Isolators



## 48525 85A at 12V DC 48530 200A at 12 V DC



Prevents loads on auxiliary battery from draining the starting battery, a Smart Isolator is more flexible than traditional Battery Isolators:

- It works with all types of alternator.
- Smaller and lighter than traditional isolators.
- There are no efficiency losses due to diodes.
- It allows bi-directional charging from the alternator or from shore power.
- It reduces the load on the charging system by not connecting the auxiliary battery until the primary battery is charged to 13.2 V . This extends the life of expensive charging components.
Simple to install - connect to starting battery, auxiliary battery and ground. Optional start assist: momentary switch allows the auxiliary battery to assist the starting battery. LED status indicator.


## Specifications

Operating temperature range: -40 to $85^{\circ} \mathrm{C}$.
Ingress protection: IP66 per IEC,
(high pressure wash resistant).
Humidity: to $90 \%$ RH.
Vibration: 10-500Hz per SAE J1455.
Shock \& thermal shock: per SAE J1455.
EMI/RF: Per SAE J1455 \& J1113.
Battery terminals torque: 50 in-lbs ( 5.78 Nm ).
Normal input voltage: 9V min, 16V max.
Continuous current: 48525 85A; 49530 200A.
Connect voltage: 13.2 V typical after two minutes at this level.
Disconnect voltage: 12.7 V after one minute at this level.
Quiescent current: 5mA typical, 8mA max.
Relay off, start signal input open or grounded.

## 4-Stud Battery Isolators

## For use with Delcotron-type alternators.

## 4809290 Amp

90A at 12V DC, 12-36V. Terminations: three $1 / 4$ " ( 6.4 mm ) studs and one No. 10 stud. Two 9/32" (7.2mm) diameter mounting holes. Size: $61 / 2^{\prime \prime} \mathrm{L} \times 3$ 1/4"W x 2 13/16"H ( $165.0 \times 82.6 \times 71.0 \mathrm{~mm}$ ).


## 48122140 Amp

140A at 12V DC, 12-36V. Terminations: three $5 / 16$ " ( 7.9 mm ) studs and one No. 10 stud. Four 9/32" (7.2mm) diameter mounting holes. Size: 6"L x 4 13/16"W x 3 11/32"H (152.4 x122.2 x 84.9mm).


## 48162200 Amp

200A at 12V DC, 12-36V. Terminations: three 5/16" (7.9mm) studs and one No. 10 stud. Four 9/32" (7.2mm) diameter mounting holes. Size: $81 / 2 " L \times 43 / 16^{\prime \prime} W \times 313 / 32 " H$ $(215.0 \times 122.2 \times 86.5 \mathrm{~mm})$.


## battery-related products

## 3-Stud Battery Isolators

For use with alternators that do not have an integral electronic voltage regulator.

## 4808042 Amp

42A at 12V DC, 12-36V. Terminations: one 10AWG 6 "
( 152.4 mm ) wire lead, two 12AWG wire leads. Two 13/64" ( 5.2 mm ) diameter mounting holes. Size: 5 " $\mathrm{L} \times 31 / 4^{\prime} \mathrm{W} \times 2$ $3 / 16^{\prime \prime} \mathrm{H}$ ( $127.0 \times 82.6 \times 71.0 \mathrm{~mm}$ ).


## 4807070 Amp

70 A at 12 V DC, $12-36 \mathrm{~V}$. Terminations: three $1 / 4$ " ( 6.4 mm ) studs. Two $9 / 32^{\prime \prime}(7.2 \mathrm{~mm})$ diameter mounting holes. Size: $5^{\prime \prime} \mathrm{L} \times 3$ 1/4"W 22 3/16"H ( $127.0 \times 82.6 \times 71.0 \mathrm{~mm}$ ).


## 4809090 Amp

90 A at 12 V DC, $12-36 \mathrm{~V}$. Terminations: three $1 / 4$ " ( 6.4 mm ) studs. Two $9 / 32^{\prime \prime}(7.2 \mathrm{~mm})$ diameter mounting holes. Size: 6 1/4"L x 3 1/4"W x 2 3/16"H ( $165.0 \times 82.6 \times 71.0 \mathrm{~mm}$ ).


## 48120140 Amp

140 A at 12 V DC, $12-36 \mathrm{~V}$. Terminations: three $5 / 16^{\prime \prime}$ ( 7.9 mm ) studs. Four $9 / 32$ " $(7.2 \mathrm{~mm})$ diameter mounting holes. Size: 6 1/4"L x 4 3/16"W x 3 11/32"H ( $152.4 \times 122.2 \times 84.9 \mathrm{~mm}$ ).


## 48160200 Amp

200A at 12V DC, 12-36V. Terminations: three 5/16" (7.9mm) studs. Four 9/32" (7.2mm) diameter mounting holes. Size: 8 1/2"L x 4 3/16"W x 3 13/32"H ( $215.0 \times 122.2 \times 86.5 \mathrm{~mm}$ ).


For Ambulances
Used to isolate medical equipment batteries from vehicle batteries. With Schottky diode, to comply with Federal Specification KKK-A-1822B for ambulances.

## 4805175 Amp at 12V DC



## 48161250 Amp

250 A at 12V DC, 12-36V. Same as 48160, but with Schottky diodes. Terminations: three $5 / 16^{\prime \prime}$ ( 7.9 mm ) studs. Four 9/32" (7.2mm) diameter mounting holes. Size: 8 1/2"L x 4 3/16"W x 3 $13 / 32$ "H ( $215.0 \times 122.2 \times 86.5 \mathrm{~mm}$ ).


## Ignition

See Section C


## 24505 Lockout Lever Kit

Special lever and flange plate accept a padlock to securely lock a Disconnect Switch in the Off position, which is required by many lock-out/tag-out safety regulations. For use with Cole Hersee lever actuated master disconnect switches with a 3/4" diameter ( 19.1 mm ) mounting stem: 2484, 2484-A, 2484-06, 2484-09, 2484-16, 75903, 75904, 75904-01, 75907, 75908, M-284, M-284-A, M-284-01, M-284-02, M-289, M-290, M-290-01, M-290-05. (We recommend the use of a padlock with a $5 / 1^{\prime \prime}$ ( 7.9 mm ) diameter shackle.)


## 80101-B Replacement Lever

Chrome-plated diecast lever. Fits Cole Hersee lever-actuated Master Disconnect Switches on pages 88-90.


## 83353 Hencol Key

For Hencol trouble-free locks. Heavy gauge plated steel resists corrosion.


## Face Plates

## 82065 Without Indexing Hole

For Master Disconnect Switches. Polished aluminum with enamel finish. Fits Cole Hersee Master Disconnect Switches without indexing pin. 2 1/2" ( 63.5 mm ) diameter.


## 82065-02 With Indexing Hole

Same as 82065, but with hole for indexing pin.

## Battery Jumper Terminals and Studs

Use them to make easily-accessible battery connections, inside or outside the vehicle. Can be used individually or in pairs. Easy to install. Solid brass posts. Includes brass hexnut and lockwasher. Jumper terminals have contact post 13/16" (20.6mm) diameter, 1 1/8" (28.8mm) long, which is grooved to accept standard jumper cables 6 -48V DC.

## 46210-02 Post with Red Cap for Positive Terminals

Replacement red cap: 97846-A


## 46210-03 Post with Black Cap

for Negative Terminals
Replacement black cap: 97846-B


## 46211-R Red Battery Feeder Stud

Brings 6-36V DC power through bulkheads or firewalls. Impact-resistant plastic isolator/mounting bushing, 1 17/64" ( 32.1 mm ) diameter, 5/8" ( 15.6 mm ) long. Two $3.8 "-16$ thread brass stud terminals, $5 / 8$ " ( 15.9 mm ) long.


46211-01 Black Battery Feeder Stud
Same as 46211-R, only black plastic.


## battery-related products

## J6 INFORMATION

## Battery Selector \& Master Disconnect Switches

Key to diagrams: L = starter \& load, SW = Battery Selector \& Master Disconnect Switch, BAT = battery, ISO = Battery Isolator, $\mathrm{COM}=$ common, $\mathrm{ALT}=$ alternator REG = Regulator

## M-750 \& M-751

Download instruction form IF-63 from our website.
One Engine and Two Batteries


## Two Engines and Two Batteries



One Engine, Two Batteries, with Battery Isolator


Two Engines, Two Batteries, Two Switches


## M-752 \& M-753

Download instruction form IF-130 from our website.

## One Engine and Two Batteries



Two Engines and Two Batteries, with Battery Isolator


M-754 \& M-754-01
Download instruction form IF-121-1 from our website.

## One Engine and Two Batteries



Two Engines and Two Batteries


## J battery-related products

Two Engines, Two Batteries, Two Switches


One Engine and Two Batteries, with Battery Isolator


## Battery Isolators

4-Stud Type 48092, 48122 and 48162.


## 3-Stud Type

48070, 48080, 48090, 48120, 48160, and 48161.


## Master Disconnect Switches

## SPST Switches

Download instruction form IF-126 from our website.


## DPST Switches

Download instruction form IF-109 from our website.


## 75912 Switch

For two high current loads.


## The Versatile 75912

1. Use the 75912 for switching two motors or two battery banks simultaneously. The two circuits can be different voltages such as 12 V and 24 V .
2. Extra safety. When used in one circuit the 75912 controls the negative and positive sides of the circuit.

