



Hammerhead TM

**Programmable 6 and 12 Switch
Accessory Controls**

Operation Manual

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Limited Warranty

Cirus Controls, LLC.

What and who is covered?

This warranty covers all defects in materials or workmanship in your Cirus Controls system under normal use, maintenance and service. This warranty coverage applies only to the original owner and is not transferable.

How long is the warranty period?

This warranty coverage runs for a period of 1 year from the date of initial installation (or 13 months from date of shipment from Cirus Controls), whichever occurs first. Replacement parts are warranted for the remaining portion of the original warranty period or thirty (30) days from date of shipment from our factory (whichever is greater).

How can you get service?

Cirus Controls' obligation under this warranty is limited to repairing and/or replacing, at Cirus Controls' option, any part or parts that are determined, by Cirus Controls, to be defective. To be eligible for any claim under this warranty, the owner (or Cirus authorized dealer) must return any defective part(s) to the factory, within the applicable warranty period (as set out above).

What will we do?

Cirus Controls' may, at its option, elect to grant adjustments in the field through an authorized representative and may thereby elect to waive the requirement that parts be returned to Cirus Controls' factory. The repair or replacement of defective parts under this warranty will be made without charge to the owner except for transportation of the part to our authorized repair location.

What is not covered under this warranty?

Cirus Controls will not assume any expense or liability for repairs made outside our plant without our prior written consent. We are not responsible for damage to any associated equipment or product and will not be liable for loss of profit or other special damages.

The provisions of this warranty do not apply to any product or parts which have been subject to misuse, negligence or accident, or which have been repaired or altered outside of Cirus Controls' factory in any way (in the judgment of Cirus Controls) so as to affect adversely its performance or reliability. Neither does this warranty apply to normal maintenance service and parts or to normal deterioration due to wear and exposure.

This warranty is expressly in lieu of other warranties, expressed or implied, in fact or by law, including any implied warranty of merchantability of fitness for a particular purpose. The remedies of repair or replacement as set forth are the only remedies under this warranty, Cirus Controls' disclaims any obligations or liability for loss of time, inconvenience, commercial loss or direct consequential, special or incidental damages. This warranty is in lieu of any other obligation or liability of Cirus Controls' of any nature whatsoever by reason of the manufacture, sale, lease or use of such products and Cirus Controls neither assumes, nor authorizes anyone to assume for it, any other obligation or liability in connection with such products.

Package Contents

A complete *Hammerhead*TM control system contains the following items:

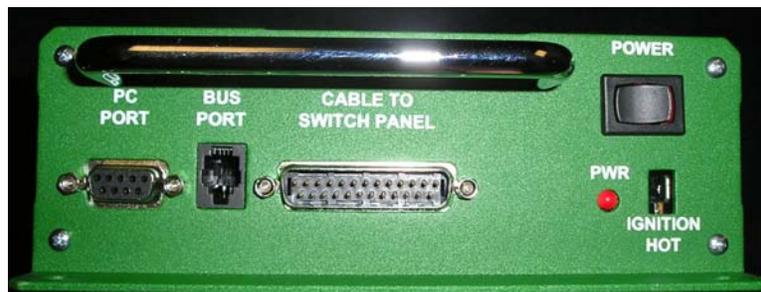
- 1) *Hammerhead*TM accessory control unit;
- 2) *Hammerhead*TM 6 or 12 Switch control panel;
- 3) *Hammer Config*TM program for the PC on a CD;
- 4) A DB-25 cable for connecting the control unit to the switch panel.
- 5) 80 amp circuit breaker for the main power;
- 6) Power cable (HH-1000);
- 7) 12 pin Wago connector for signal inputs;
- 8) This manual;

If any of these items are missing, please contact your distributor for replacement parts.

Functional Overview

The *Hammerhead*TM control system is a 12 output, microprocessor-based accessory control system. The system may include 6 or 12 switches that activate 12 volt relays, each protected by 10 amp automatic reset breakers. Each switch in the control panel can be configured to operate in multiple formats by assigning different control functions using the *Hammer Config*TM program on any Windows compatible PC. Typical applications include all external lighting systems, tarps, vibrators, truck chains, tail gates, etc.

*Hammerhead*TM Left Panel



Connections:

Cable to Switch panel: a DB-25 connector that runs up to the switch panel mounted in the flip arm (Standard cable).

PWR LED: indicates power is “on” to PC board inside enclosure.

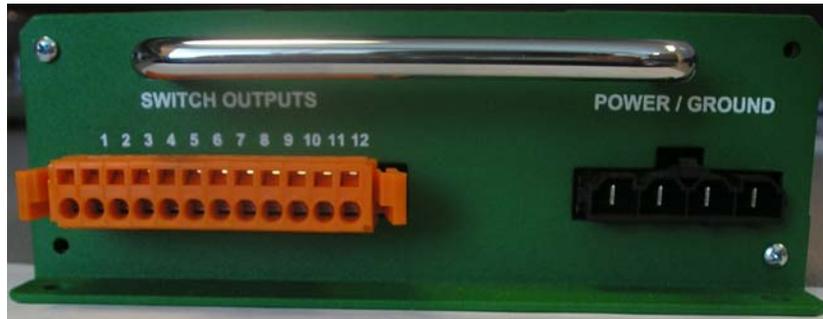
Ignition Hot: Allows the unit to turn on with the truck ignition; must be wired with 12v or system will not run.

PC Port: standard PC serial connection used for field setting switches and other configuration options. (Optional cable)

Power Switch: controls main power to the *Hammerhead*TM.

Bus Port: used for communication between Cirrus Controls products. (Optional)

Hammerhead™ Right Panel



Connections:

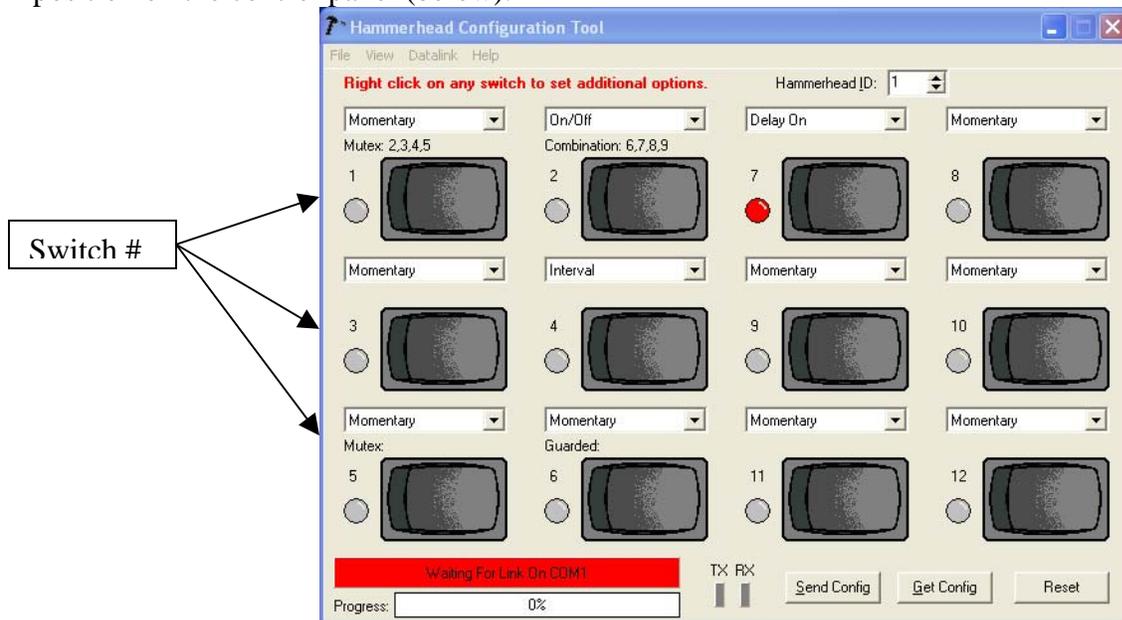
PWR / GND: 4-pin Molex used for connecting power and ground to system (Standard 10 gauge cable included with 2 power lines and 2 ground lines). Both power lines must be attached directly to the same stud on the 80amp breaker (provided) and then attached **directly to the truck battery**. The primary ground line may be used to create a common ground point in the truck cab for the accessories to be controlled by this system.

Switch outputs (1-12): includes standard Wago connector to allow attachment of **positive signal wire** from each accessory system to be controlled by the *Hammerhead™*

Note: Accessory system amperage limited to 10 amps per output channel.

Primary ground and primary power supply must come directly from the battery. Do not take power or ground for this system from any other source.

The switch output pin # (1-12) on the green backpack (above) corresponds to the switch position on the control panel (below).



Pre-Delivery System Setup Checklist

	Description	Completed By/Date
Step 1	Install System and connect cables	
Step 2	Test the Signal Outputs	
Step 3	Field Configure the Switches (as needed)	

Pre-Delivery

Step 1

To install and run the *Hammerhead*TM system, the following steps must be completed.

- 1) Mount the control unit in the truck cab;
- 2) Connect power cable and signal outputs for each system (up to 12 outputs allowed);
- 3) Power up the unit, and check functionality of outputs;
- 4) Configure the switches using the *Hammer Config*TM program.

Installing the control unit and switch panel

The green Hammerhead control unit should be mounted on the back wall of the truck, or underneath a seat. The 6/12 switch panel can be installed in the seat mounted arm unit or mounted in its own sheet metal in a convenient position in the cab. When mounting the control unit, make sure the DB-25 cable coming from the arm unit will reach the green *Hammerhead*TM accessory control unit once it is mounted.

Connecting the cabling

1. Connect the one end of the DB-25 cable to the switch panel, and the other end to the switch panel control port on the *Hammerhead*TM control. Tighten the threaded connections on each end. Do not disconnect or re-connect these cables with power switch “on” to the system or system damage will result.
2. Connect the “Bus port” cable up to the Cirrus Controls plow or spreader (if one is present and linked to the *Hammerhead*TM).
3. Attach each accessory system to the individual switch outputs in the Wago connector.
4. Connect 12v supply to “ignition hot” post on unit.
5. Finally, connect the power cable (HH1000) to the unit. Check to make sure that the power switch is off before connecting the power leads. Both power lines must be attached directly to the same stud on the 80amp breaker (provided) and then attached **directly to the truck battery**. The primary ground line must be attached **directly to the truck battery**. The second ground line may be used to create a common ground point in the truck cab for the accessories to be controlled by this system.

Step 2 - Testing the signal outputs

WARNING: KEEP ALL PERSONNEL CLEAR OF MOVING PARTS!

Turn on the system with the truck off. Actuate each switch in turn and verify that the associated accessory system functions properly.

Step 3 – Configure Individual Switches

HammerheadTM – Switches Description

Each switch is a spring loaded body that can be configured to operate in one of several operational modes without changing the physical operation of the switch. Any combination of the switches can be assigned to any of the 7 operational modes. Switch options only apply to certain switch types.

Operational Modes of the switches:

1. Momentary On: on when pressed, off when released;
 - a. Used as a normal switch for many systems;
2. On/Off: Press to turn on, press to turn off;
 - a. Used as a normal switch for many systems;
3. Delayed On (Time Guarded Switch): Press and hold for up to 60 seconds to turn on. Press again to turn off;
 - a. Used as a safety feature to prevent inadvertent actuation of accessory (eg: tailgate, belly dump).
4. Delayed Off (Automatic shut off): Press to turn on, automatically turns off after up to 60 seconds.
 - a. Used for an accessory that must not run for long periods, such as a vibrator system.
5. Momentary Off: default is on, press for off;
 - a. Used for hot oil, low oil, hoist limit over-ride circuits. To allow the operator to over-ride a safety feature by holding the switch “on” while he needs to protected function to operate.
6. Interval timed (Time limited function): press to turn on for up to 60 seconds, automatically shuts off. Switch then stays “in-active” for up to 60 more seconds before it can be re-energized.
 - a. Used to protect motors that cannot run for long periods of time and must not be run again until they have had time to cool down. (Eg Vibrator motors.)

7. Default On/Off: initial state is “on” when power is applied; on/off thereafter;
 - a. Used whenever the function should stay on at all times unless switched off intentionally (some kinds of system lighting).

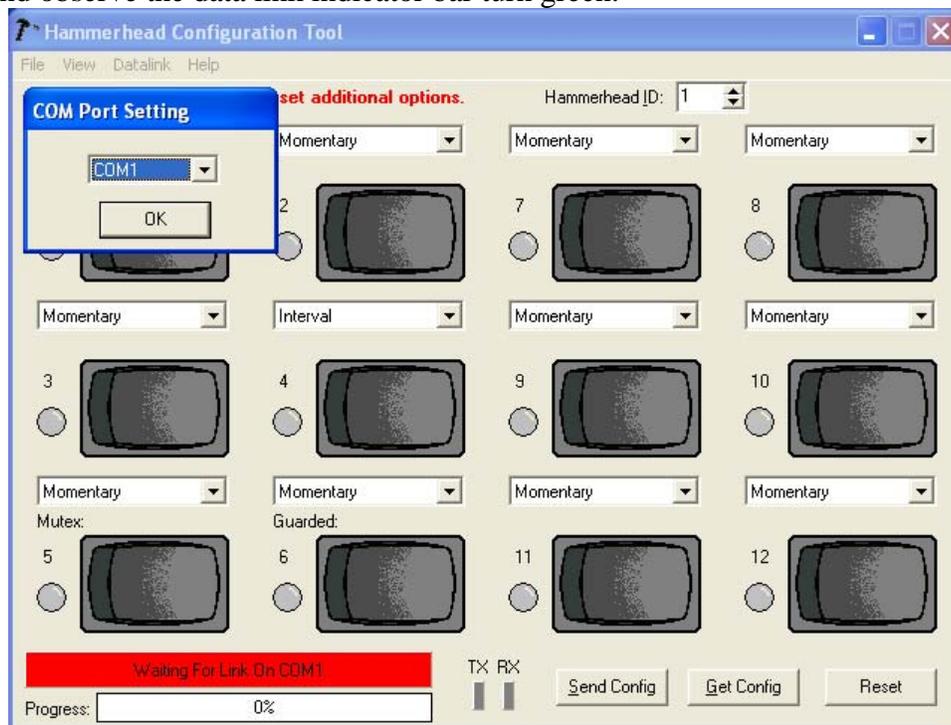
Switch Options/ Combinations of Switches

1. Mutually Exclusive Switch (Mutex Function Guard)–no more than one switch in a group of up to 4 switches may be on at any time. All switches within an assigned group are mutually exclusive;
 - a. Used to protect two directional functions such as tailgates and tarps....cannot open and close at the same time.
 - b. Use one switch to turn off up to 4 other switches simultaneously, but other switches can be configured to affect any other switches.
 - c. Applies only to:
 - i. Momentary
 - ii. On / Off
 - iii. Default On / Off
2. Combination Switch- one switch acts as master to turn on up to 4 other switches;
 - a. Used for convenience of turning on multiple functions as a group. One switch is then the master for up to 4 others. Each switch still operates individually also.
 - b. Applies only to:
 - i. Momentary
 - ii. On / Off
 - iii. Default On / Off
3. Two Button Guarded Switch (Physical Guard): requires that two switches be pushed to actuate assigned function. The two switches act as one switch.
 - a. Used as a safety feature to require the operator to intentionally actuate two switches to trigger a function.
 - b. Applies only to:
 - i. Momentary
 - ii. On / Off
 - iii. Default On / Off

Configure Switches on Hammerhead

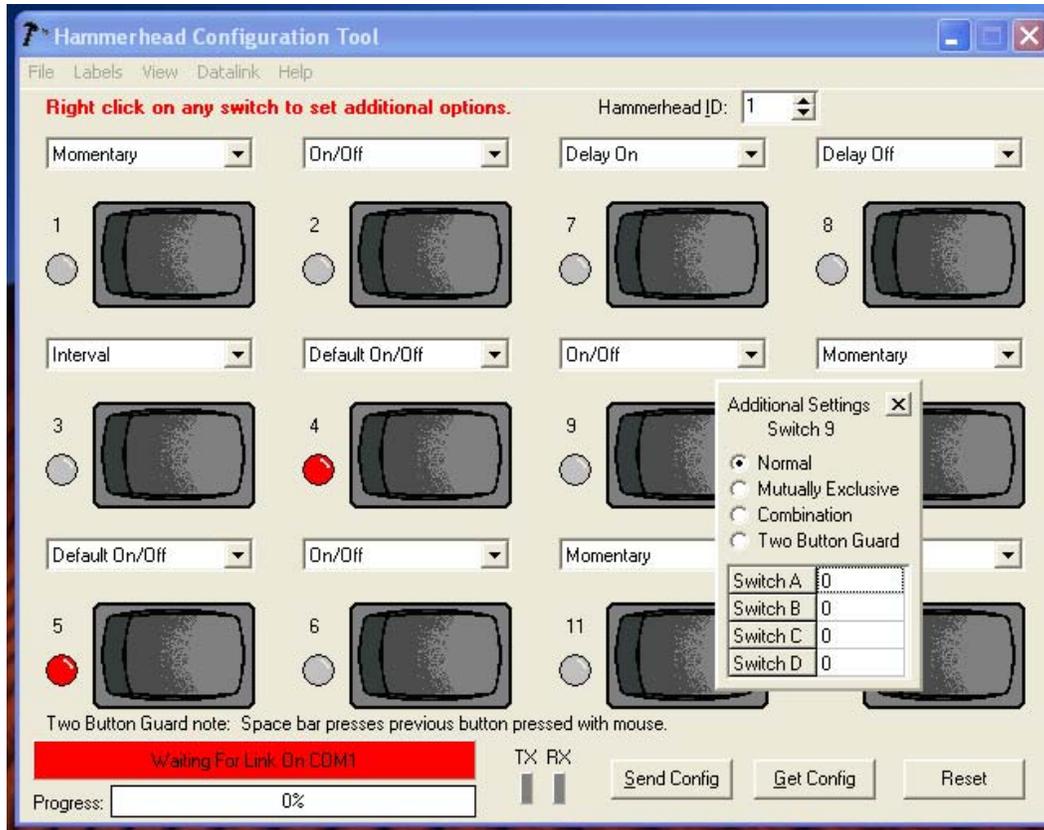
*Hammer Config*TM is compatible with a Windows 98, 2000 or XP system.

1. To configure switches or system parameters, plug a standard serial cable into the PC port on the *Hammerhead*TM control. Validate that you are using the latest version of *Hammer Config*TM. Current versions are posted on Cirus Controls' website. Verify that the COM port on the PC is available. Open the *Hammerhead*TM configuration utility.
2. After the *Hammer Config*TM program is opened, turn on the green *Hammerhead*TM accessory control. The red bar that says "waiting for link" will turn green. At this point the PC has uploaded the current configuration in the *Hammerhead*TM. If the "data link indicator bar" does not turn green, pull down the "datalink" menu and change to a Com port that is active on your PC. Restart the *Hammerhead*TM and observe the data link indicator bar turn green.

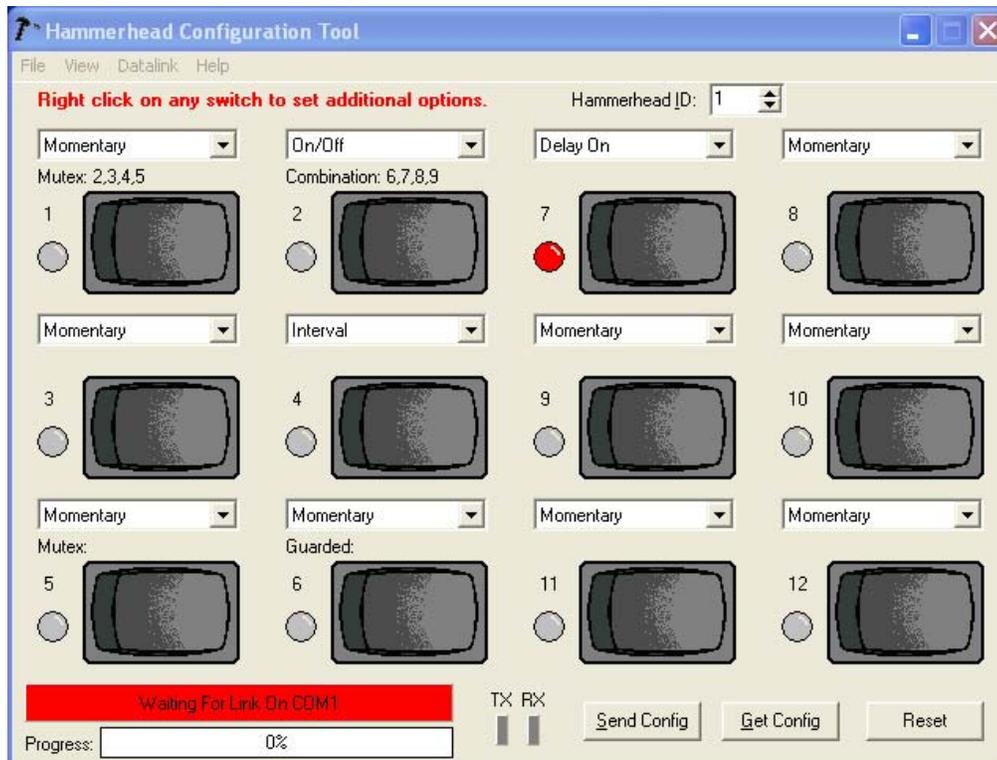


3. Please note that the numbers of the switch on the switch panel / *Hammer Config*TM program as well as the number of the pin on the Wago "switch output" connector correlate directly. Wiring the accessory to a particular pin and to the same number switch will link the functions together.
4. If you have a system with optional remote joystick buttons, chose the Hammerhead ID in upper right corner of to uniquely identify this system. This is only important in a linked *Hammerhead*TM and *Mako*TM system where the joystick switches are assigned to remotely operate an accessory. *Mako Trim*TM will have to have its target ID set to match the ID in the *Hammerhead*TM.

5. Select pull down menu for first switch to be configured and choose one of the seven operational modes available. If a combination or optional function is desired, right click on the switch and choose the option and set the timing settings. A sample is shown below.



6. Note: each switch image is accompanied by a simulated red LED to allow you to click on the switch and observe the LED turn on or off as you have designated the switch function.
7. Configure the Operational mode and optional features for each of the switches assigned (max of 12). If not all switches are assigned to accessory functions mounted on the truck, leave the switches set as momentary and they will be inactive until an accessory system is plugged into to “Wago pin” assigned to that switch. Note that once a function is plugged into a Wago pin, the switch with the corresponding number is active (default off, momentary contact to turn on).
8. Once an optional feature set is assigned to a switch, the *Hammer Config*TM will display the operational mode and the optional features and the switches to which they are assigned, just above the switch number. See illustration.



9. After completion of all configurations, hit the “send config” button to upload the new configuration to the *Hammerhead™* accessory controller. Hit “reset” to activate the new configuration in the control unit.
10. Under “file” menu, select save to store an electronic copy of the configuration file on your computer and print to print out the listing of how this switch panel is configured.
11. Close *Hammer Config™* and disconnect PC from control module. System is ready to run.

Printing Labels Using Hammerconfig™

Product Description: Cirrus Controls’ Switch label function is a tab on the executable program “Hammerconfig” that will run on any Windows 98 or newer computer. This program allows the user to define the name of each switch within the print area allowed. Font size can be changed to create the desired “look” and then the label is printed on a die cut sheet of 2 labels.

Factory configured switch panels include a pre-printed label installed under the clear overlay on the switch panel and a laser printable sheet with two blank labels on it (in the manual). Additional blank labels are available as part# 000276.12

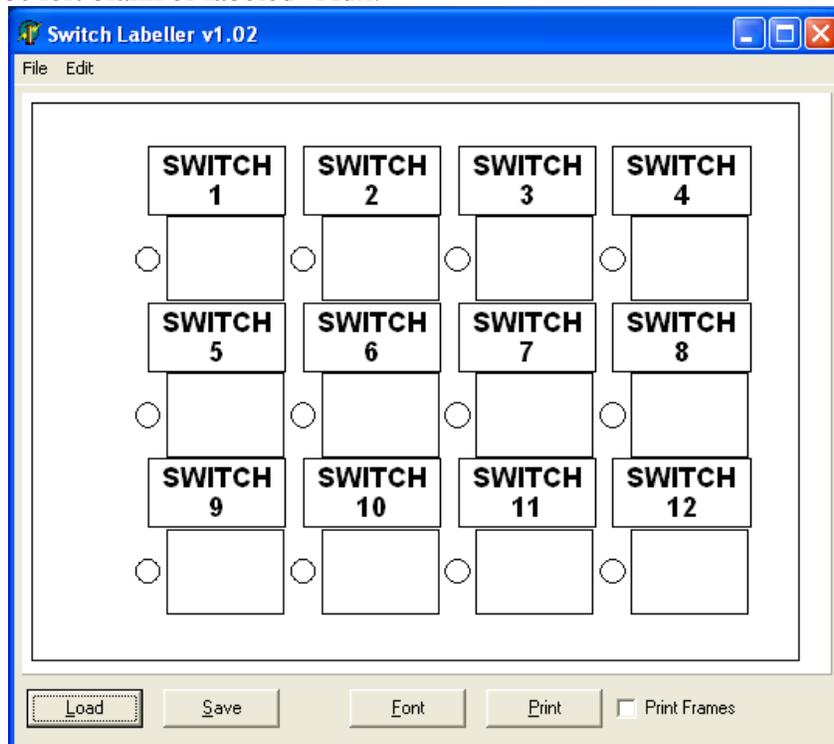
Un-configured switch panels include no label installed under the clear overlay on the switch panel and a laser printable sheet with two blank labels on it (in the manual). Additional blank labels are available as part# 000276.12

Laser Printing (recommended): these labels are designed to be printed on a laser printer and are immediately usable after printing. Verify printing registration on 1st article.

Ink Jet Printing: Ink jet printing is a less preferable method since the ink will not penetrate the label and will need to dry for several hours before use or the label will smudge. Be sure you verify the orientation of the label before printing since many inkjet printers print onto the “underside” of the sheet (as loaded into the feed tray).

Create and Print Labels:

1. Select and open the program “Hammeconfig” (on CD).
2. Select the “label” tab to begin labeling switches.
3. Point and click on the first switch position you wish to label. Each box allows for 2 lines of text and will not allow typing beyond the printable borders. Switches can be re-named in any sequence by pointing to and clicking on the box you want to change.
4. Choose the font, type size and color and type a name in each of the 12 boxes for switches. If not all 12 switches are assigned on the system, the corresponding box can be left blank or labeled “Aux.”



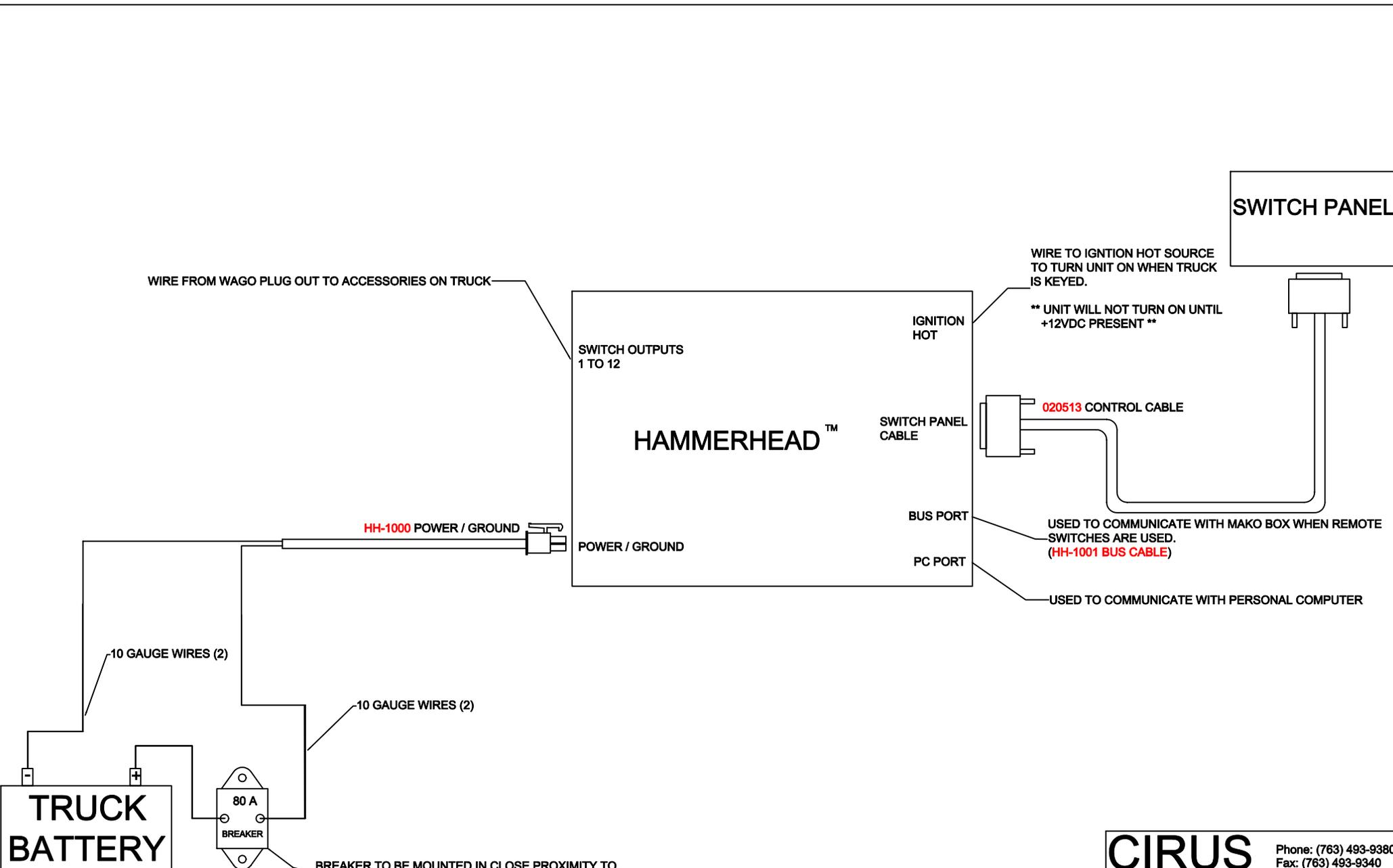
5. Select “save” to store the file you have created on your computer.
 - a. **Print Test Sheet with Frames:** Before printing, we recommend that you print a test sheet, since alignment of the printed image with the die cut image will vary from printer to printer. Check the box “print frames” which will print text and image frames to help identify any offset that occurs between the printed image and the die cut image.

- b. **If the test print does not line up with the die cut image**, select printing preferences under the edit menu to adjust the alignment. Adjustments are in 0.1 inches and can easily be estimated.
- 6. **Un-check “print frames” box when you are ready to print your final label.**
- 7. **Insert Die Cut sheet** into printer’s manual feed tray. Note that each sheet includes 2 die cut images that are oriented as mirror images to each other. The program will only print one image at a time and always prints the image at the leading edge of the sheet first. When printing the second image on the sheet, rotate the sheet 180 degrees prior to printing.
- 8. **Select “print”** to print the file onto the die cut labels supplied;

Trouble Shooting Guide

Complaint	Cause (s)	Correction (s)
Power Isn't On	a) Master Power Off; b) Bad Power or Ground connection;	a) Turn on power; b) Verify power/ground connections.
Hammerhead cuts out or acts strange;	Low power supply voltage from truck battery/alternator;	Minimum truck voltage must be > 12.0 volts;
System doesn't run as expected;	a) New configuration did not upload correctly;	a) Re-upload configuration file.
Hammer Config won't show green file link bar;	a) Wrong Com port assigned; b) Faulty Serial cable;	a) Re-assign to correct Com port; b) Replace cable;
Red LED's on switch panel do not light;	a) Output signal is shorted; b) Relay failure	a) Check output wiring between accessory and Wago plug; b) Replace Hammerhead control unit. Relays not field replaceable.
Remote joystick switches won't actuate accessories;	a) Incorrect ID numbers; b) Bad Bus cable	a) Verify Hammerhead ID matches number of the “target ID” in the Mako system in use. b) Replace Bus cable;

Appendix A – Standard System Drawings



TRUCK BATTERY

80 A BREAKER

HAMMERHEAD™

SWITCH OUTPUTS 1 TO 12

POWER / GROUND

IGNITION HOT

SWITCH PANEL CABLE

BUS PORT

PC PORT

SWITCH PANEL

WIRE TO IGNITION HOT SOURCE TO TURN UNIT ON WHEN TRUCK IS KEYED.

**** UNIT WILL NOT TURN ON UNTIL +12VDC PRESENT ****

020513 CONTROL CABLE

USED TO COMMUNICATE WITH MAKO BOX WHEN REMOTE SWITCHES ARE USED. (**HH-1001 BUS CABLE**)

USED TO COMMUNICATE WITH PERSONAL COMPUTER

BREAKER TO BE MOUNTED IN CLOSE PROXIMITY TO THE BATTERY TO PROTECT THE LINE.

CIRUS CONTROLS LLC Phone: (763) 493-9380 Fax: (763) 493-9340
 9200 WYOMING AVE. N. SUITE 320
 BROOKLYN PARK, MN 55445

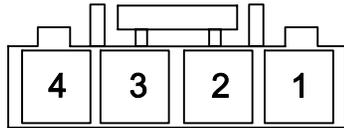
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REV	DATE	DESCRIPTION
A	-	-
B	-	-
C	-	-
D	-	-
E	-	-

DESIGN: JTM DRAWN: JTM AS BUILT: -

HAMMERHEAD CONTROL SYSTEM			
CABLE OVERVIEW			
PROJECT NUMBER:	SCALE:	DATE:	REV.
HAMMER-OV	NONE	4-20-04	-
		SHT 1 OF 1	

B.O.M.



BACK VIEW

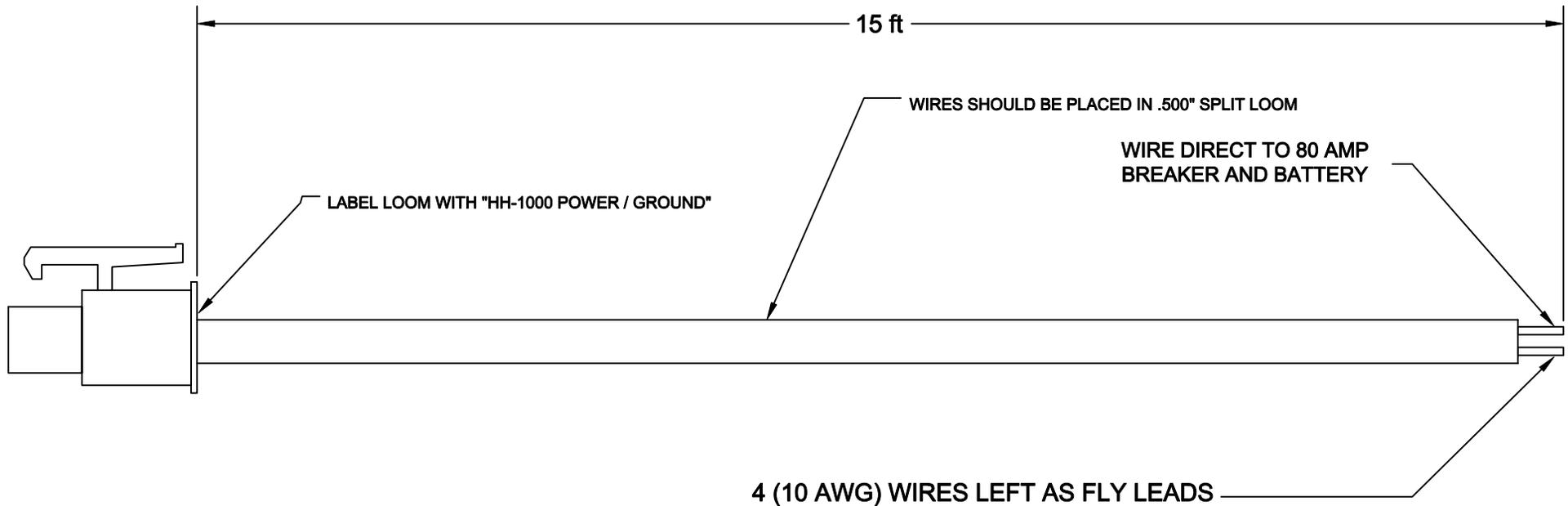
(SIDE PINS ARE INSERTED FROM)

QTY	PART NUMBER	DESCRIPTION
1	42-816-0412	MOLEX RECEPTACLE 4 PIN
4	42-815-0011	MOLEX TERMINALS FEMALE 10 AWG
15 FT	LCP-500	.500" SPLIT LOOM

MOLEX PIN#	SIGNAL
4	+12 VDC : RED (10 AWG)
3	+12 VDC : RED (10 AWG)
2	GROUND : WHITE (10 AWG)
1	GROUND : WHITE (10 AWG)

NOTES:

1. LABEL WIRES WITH SIGNAL EVERY 12 INCHES
2. TAPE SPLIT LOOM EVERY 12 INCHES



CABLE # HH-1000

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REV	DATE	DESCRIPTION
A	3-18-04	wire gauge change
B	-	-
C	-	-
D	-	-
E	-	-

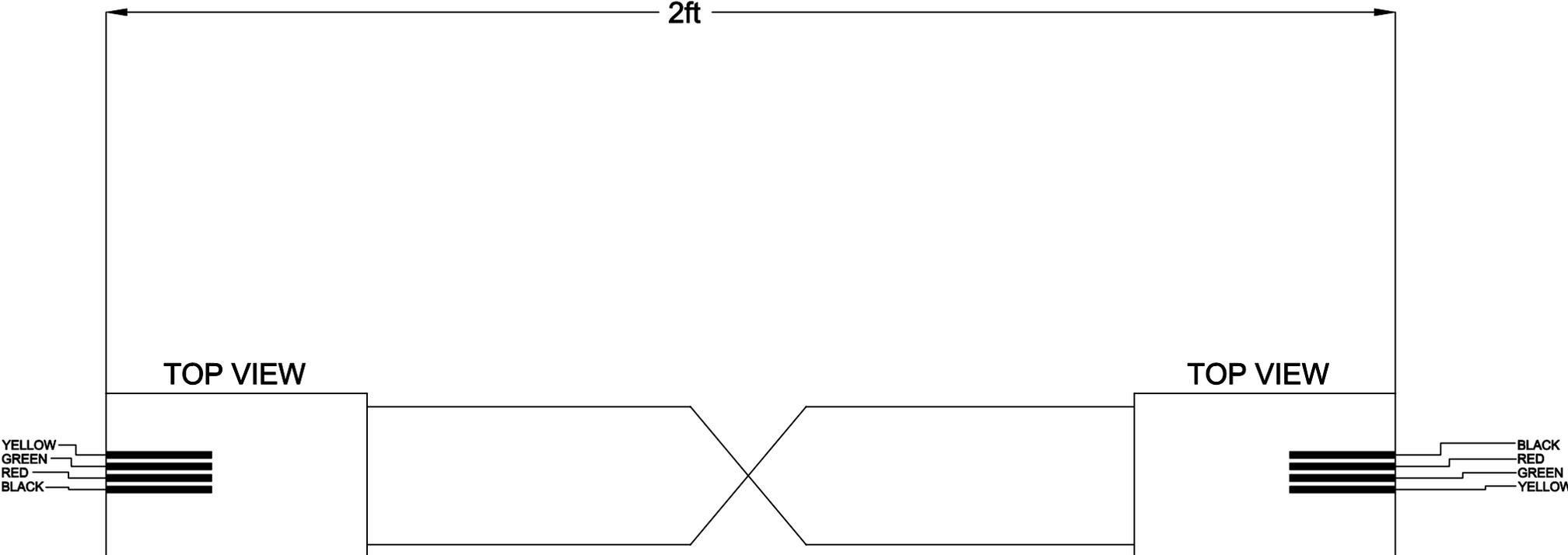
DESIGN: JTM DRAWN: JTM AS BUILT: -

Cirus Controls
9200 Wyoming Ave. N, Suite 320
Brooklyn Park, MN 55445
Tel: (763) 493-9380
Fax: (763) 493-9340

HAMMERHEAD	
POWER CABLE	
PROJECT NUMBER: HH-1000	SCALE: NONE
DATE: 3-3-04	REV: A
SHT 1 OF 1	

BILL OF MATERIALS

<u>OUR #</u>	<u>PART #</u>	<u>QTY</u>	<u>DESCRIPTION</u>
000394	380-1002-ND	2	4 PIN PLUG
001236	H0042-100-ND	8 FT	4 CONDUCTOR PHONE CORD



CIRUS Phone: (763) 493-9380
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 BROOKLYN PARK, MN 55445

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REV	DATE	DESCRIPTION											
A	-	-	HAMMERHEAD BUS CABLE										
B	-	-											
C	-	-											
D	-	-											
E	-	-											
DESIGN:	JTM	DRAWN:	JTM	AS BUILT:	-	PROJECT NUMBER:	HH-1001	SCALE:	NONE	DATE:	4-20-04	REV.	-
											SHT 1 OF 1		