SIMPLEX

BY PAINLESS WIRING

THE SIMPLEX WIRING SYSTEM, FOR AUTOMOTIVE USE, IS DESIGNED AROUND

MULTIPLEXING OF INFORMATION COMMONLY USED IN COMPUTER AND

TELEPHONE NETWORKING.

THE HOST COMPUTER, LOCATED IN THE PASSENGER COMPARTMENT, RECEIVES

SIGNALS FROM VARIOUS SWITCHES, (SUCH AS HEADLIGHTS, WIPER, TURN

SIGNALS) AND TRANSMITS THIS INFORMATION, BY WAY OF TWO VERY SMALL

WIRES, TO THE SERVERS, WHICH ARE COMPUTERS LOCATED USUALLY AT THE

FRONT AND REAR OF THE VEHICLE, AND THE SERVERS THEN ACTIVATE THE

PROPER DEVICE AS INSTRUCTED.

THE SIMPLEX SYSTEM HAS SEVERAL ADVANTAGES;

A. NO MAJOR HARNESS IS REQUIRED TO OPERATE VEHICLE FUNCTIONS

B. WEIGHT IS SAVED BY USING LESS COPPER

C. EASE OF INSTALLATION DUE TO THE PLUG IN DESIGN

D. EASY EXPANDING OF SYSTEMS WITHOUT HARNESS MODIFICATIONS

E. EMERGENCY AND TROUBLE SHOOTING AIDS BUILT IN

F. WEATHER RESISTANT CONNECTIONS

INSTALLATION INSTRUCTIONS

THE SIMPLEX SYSTEM IS DESIGNED TO OPERATE AS A GROUNDING SYSTEM. A REGULAR AUTOMOTIVE SYSTEM USES A POSITIVE INPUT (BATTERY POWER)SYSTEM.

A GROUNDING SYSTEM, LIKE MOST COMPUTER SYSTEMS, IS ACTIVATED BY GROUNDING A SPECIFIC CIRCUIT IN THE COMPUTER WHICH IN TURN SENDS A SIGNAL TO THE SERVER TO ACTIVATE THE APPROPRIATE DEVICE. THE COMPUTER ONLY, HAS BATTERY POWER AND THE SWITCHES SIMPLY PROVIDE GROUNDS. THE TERMINALS ON THE SWITCHES THAT NORMALLY WOULD BE ATTACHED TO A POWER SOURCE ARE NOW GROUNDED.

WARNING: ATTACHING ANY WIRE TO A BATTERY POWER SOURCE NOT LABELED TO DO SO, WILL DAMAGE THE COMPUTER AND VOID ANY WARRANTY! MANY SWITCHES THAT ORIGINALLY HAD POWER TO THEM, NOW ARE GROUNDED.

1. LOCATE A SUITABLE LOCATION IN OR AROUND THE DASH AREA MOUNT THE HOST COMPUTER. THIS COMPUTER HAS TWO PLUGS THAT ARE BLACK.

2. CONNECT THE HOST COMPUTER TO THE REAR COMPUTER USING THE LONG BUSS CABLE. THIS CABLE WILL HAVE A SINGLE 6 WAY CONNECTOR ON ONE END AND A "Y" STYLE DOUBLE 6 WAY CONNECTORS ON THE OTHER END. THESE CABLES ARE DESIGNED TO ACT AS EXTENSION CORDS AND MAY BE COUPLED END TO END. SEE ILLUSTRATION "A"

3. ATTACH EACH WIRE FROM THE CONNECTORS, OF THE HOST COMPUTER, TO THE APPROPRIATE SWITCH OR TERMINAL AS DESIGNATED IN THE FOLLOWING CHART AND ILLUSTRATION "B".

NOTE: KEEP COMPUTERS AND CABLES AWAY, AS FAR AS POSSIBLE, FROM SPARK PLUG WIRES AND THE IGNITION COIL.

HOST COMPUTER

CONNECTOR A **NOTE ILLUSTRATION B**

RED; MAIN POWER INPUT FROM BATTERY
NOTE: THIS WIRE MUST BE ATTACHED TO THE POSITIVE BATTERY TERMINAL AND PROTECTED BY A FUSIBLE LINK.

BLACK; GROUND
NOTE: THIS WIRE MUST BE GROUNDED TO THE BATTERY NEGATIVE TERMINAL

RED / WHITE; IGNITION POWER FOR ACTIVATING POWER RELAYS FOR A/C, STEREO AMPS, WIPER ETC. (THIS IS ONLY A 2 AMP OUTPUT CIRCUIT)

BROWN; TO DASH LIGHT DIMMER CONTROL

GRAY; TO DASH LIGHTS (POWER WIRE)

BLUE; TO RIGHT TURN INDICATOR (POWER WIRE)

LIGHT BLUE; TO LEFT TURN INDICATOR (POWER WIRE)

WHITE; TO DOME LIGHT (POWER WIRE)

LIGHT GREEN; TO HIGH BEAM INDICATOR (POWER WIRE)

YELLOW/WHITE; TO FUEL PUMP SWITCH (THIS REQUIRES A 12 VOLT INPUT)

BLACK/WHITE; TAPE AND STORE

CONNECTOR B **NOTE ILLUSTRATION C**

IMPORTANT: IN THE FOLLOWING SWITCHES, THE NORMAL 12V INPUT TERMINALS ARE NOW GROUNDED. IGNITION, LIGHT, BACKUP, TURN SIGNAL, ELECTRIC FAN AND BRAKE. ATTACH A LENGTH OF BLACK WIRE (FURNISHED IN KIT) FROM EACH INPUT TERMINAL TO GROUND.

BROWN; TO TAIL LIGHT TERMINAL OF THE LIGHT SWITCH (THIS WILL ALSO TURN ON THE PARK LIGHTS)

TAN; TO A LOWER TERMINAL OF THE DIMMER SWITCH (HIGH BEAM SWITCH)

LT. GREEN; TO THE OTHER LOWER TERMINAL OF THE DIMMER SWITCH
NOTE: A LENGTH OF BLUE/YELLOW WIRE (SUPPLIED IN KIT) MUST BE RUN FROM THE HEADLIGHT TERMINAL OF THE LIGHT SWITCH TO THE UPPER REMAINING TERMINAL OF THE DIMMER SWITCH.

WHITE/BLACK; TO THE DOME LIGHT TERMINAL OF THE LIGHT SWITCH.
NOTE: THIS WIRE SHOULD BE TIED INTO THE DOOR JAMB SWITCHES TO ACTIVATE THE DOME LIGHT.

YELLOW; TO LEFT TURN REAR OUTPUT OF THE SIGNAL SWITCH (AT COLUMN)

GREEN; TO RIGHT TURN REAR OUTPUT OF THE SIGNAL SWITCH (AT COLUMN)

WHITE; TO A BRAKE LIGHT TERMINAL OF THE BRAKE SWITCH

BROWN/WHITE; TO HAZARD SWITCH (AT COLUMN)

PURPLE; TO STARTER OUTPUT, OF THE IGNITION SWITCH, (RUN THIS WIRE THROUGH THE INTERIOR NEUTRAL SAFETY SWITCH IF SO EQUIPPED)

PINK; TO IGNITION (COIL) TERMINAL OF IGNITION SWITCH

ORANGE/BLACK; TO ACCESSORY SWITCH FOR AN ENGINE ACCESSORY

LIGHT GREEN/WHITE; TO A BACK UP SWITCH TERMINAL

GRAY/WHITE; TO FAN SWITCH (GROUNDING SWITCH IN ENGINE OR DASH)

BLACK; TO HORN GROUND (IN COLUMN)

PURPLE/BLACK; TO REAR ACCESSORY SWITCH

BLUE; TO FRONT ACCESSORY SWITCH

ORANGE; TO ACCESSORY TERMINAL OF IGNITION SWITCH

FRONT SERVER **NOTE ILLUSTRATION D**

TAN; POWER FOR LOW BEAM HEADLIGHT (TWO WIRES, ONE FOR EACH SIDE)

LIGHT GREEN; POWER FOR HIGH BEAM HEADLIGHT (TWO WIRES, ONE PER SIDE).

BROWN; POWER FOR PARK/MARKER LIGHTS

BLUE; POWER FOR RIGHT TURN LIGHT

LIGHT BLUE; *POWER FOR LEFT TURN LIGHT*

WHITE; POWER FOR AN ACCESSORY (THIS WIRE IS ACTIVATED BY THE BLUE WIRE IN HOST CONNECTOR B)

GRAY; TAPE AND STORE (LIMP HOME)

BLACK; TO GROUND

ENGINE SERVER **NOTE ILLUSTRATION E**

GRAY/WHITE; POWER FOR THE COOLING FAN RELAY TRIGGER

PINK; POWER FOR IGNITION (12 V SOURCE FOR COIL)

WHITE; POWER FOR ALTERNATOR REGULATOR EXCITER(IGNITION HOT) OR AN ACCESSORY

NOTE; THE WHITE WIRE (EXCITER) IS NOT USED WITH ONE WIRE ALTERNATORS

GREEN; POWER FOR HORN

PURPLE; POWER FOR STARTER RELAY

RED; POWER FOR ELECTRIC CHOKE

BLACK WHITE; POWER FOR A/C COMPRESSOR

ORANGE/BLACK; ACCESSORY POWER (THIS WIRE IS ACTIVATED BY GROUNDING THE ORANGE/BLACK WIRE IN CONNECTOR B)

GRAY; TAPE AND STORE (LIMP HOME)

BLACK; TO GROUND

REAR SERVER **NOTE ILLUSTRATION F**

YELLOW; POWER FOR LEFT TURN / BRAKE LIGHT

BROWN; POWER FOR TAIL AND LICENSE PLATE LIGHTS

YELLOW/WHITE; POWER FOR FUEL PUMP RELAY TRIGGER

NOTE; THE YELLOW/WHITE WIRE IS NOT USED WITH FUEL PUMPS CONTROLLED BY THE FUEL INJECTION COMPUTER

LIGHT GREEN; POWER FOR BACKUP LIGHTS

GREEN; POWER FOR RIGHT TURN / BRAKE LIGHT

ORANGE; POWER FOR THIRD BRAKE LIGHT

PURPLE/BLACK; ACCESSORY POWER SUPPLY

GRAY; TAPE AND STORE (LIMP HOME)

BLACK; TO GROUND

TROUBLE SHOOTING

1: SYSTEM DOES NOT OPERATE CORRECT COMPONENTS

A: CHECK SERVERS FOR PROPER INSTALLATION LOCATION. FRONT TO HEADLIGHT AREA, ENGINE TO THE ENGINE CONTROL DEVICES AND REAR TO THE TAIL LIGHT AREA.

B: CHECK THE WIRE PIGTAILS FOR PROPER COLOR CODE AT EACH SERVER.

C: CHECK THE SWITCHES FOR PROPER CONNECTIONS TO THE HOST MODULE.

D: CHECK ALL INPUT SWITCHES ARE PROPERLY GROUNDED.

2: COMPONENTS HAVE PROPER, BUT INTERMITTENT OPERATION.

A: CHECK CONNECTORS ON THE POWER DISTRIBUTION WIRE FOR POSSIBLE PIN MISALIGNMENT OR BAD CONNECTION.

B: CHECK CONNECTORS ON THE TALK WIRES FOR POSSIBLE PIN MISALIGNMENT OR BAD CONNECTION.

C: CHECK THE CHASSIS GROUND OR THE GROUND PROVIDED FOR THE COMPONENTS THAT OPERATING INTERMIT TINGLY.

D: CHECK TO MAKE SURE THE TALK AND POWER HARNESS GROUND GOES DIRECTLY TO THE BATTERY.

WARNING **NO OTHER COMPONENTS SHOULD BE GROUNDED THROUGH THIS WIRE EXCEPT THE SIMPLEX SYSTEM.**

3: NO SYSTEM OPERATION

A: CHECK THE POWER/TALK HARNESS TO INSURE THE PLUGS ARE INSERTED PROPERLY AND TOTALLY.

B: CHECK BOTH BATTERY CONNECTIONS FOR PROPER CONTACT.

C: CHECK THE CHASSIS GROUNDS AND GROUNDS FOR ALL COMPONENTS.

D: INSTALL THE TESTER IN THE POWER/TALK HARNESS AND CHECK FOR OPERATION OF THE LED. IF THE LED IS NOT LIGHTED, CHECK FOR BAD CONNECTION AT THE BATTERY.

E: CHECK THE TALK LED IN THE TESTER. IF THE LED IS NOT LIGHTED, CHECK TO INSURE THE GROUND IS ATTACHED DIRECTLY TO THE BATTERY.

NOTE: THE SYSTEM MUST BE TOTALLY CONNECTED BEFORE THE TALK LIGHT WILL OPERATE.

4: INDIVIDUAL COMPONENTS IN SYSTEM NOT OPERATING

A: CHECK FOR BAD FUSE. FUSES ARE LOCATED IN THE HOST AND IN THE SERVERS.

B: CHECK FOR PROPER COMPONENT GROUND.

C: CHECK SWITCH FOR PROPER HOST INPUT GROUND.

5: BLOWN FUSES IN THE HOST OR SERVERS

A: CHECK FOR OVERLOADING OF CIRCUIT. EACH CIRCUIT IS RATED FOR 10 AMPS MAXIMUM

WARNING: OVER FUSING ANY CIRCUIT WILL DAMAGE THE COMPUTER AND VOID ALL WARRANTIES.

B: IF COMPONENT REQUIRES MORE CURRENT THAN 10 AMPS, SUCH AS A FAN OR FUEL PUMP, USE A RELAY.

IF THESE PROCEDURES DO NOT HELP FIND THE PROBLEM, PLEASE CALL THE PAINLESS WIRING TECH LINE FOR FURTHER ASSISTANCE