

Wire Description		
Wire Number	Wire Color	Description
101	RD	Unswitched Battery (+)
102C	GN	Chassis Ground
102C	BK	Valve Group Return
103	YL	Key Power
104	OR/BK	Grapple Magnet Switch / Generator Enable
104A	WH	Generator Enable
109	RD	Alternator Breaker Batt (+) to Alternator
110	RD	Key Power
111	RD	Generator Winding Termination F2
112	RD	Key Power to Circuit Board
112	PU	Key Power
115	RD	Boost Relay to Lift / Drop Relay to Power Resistors
116	RD	Circuit Board to Boost Relay / Power Resistor / F1 Winding Termination
117	GN/BK	Magnet Lift Switch
118	BK/BK	Magnet Drop Switch
120	YL	Key Power from Disconnect Sw. to Magnet Control Fuse
121	BU	Power Resistors Jumper
123	RD	Drop Time BCD 1
124	BK	Drop Time BCD 2
125	WH	Drop Time BCD 4
151	GN	Key Power from Generator Breaker to Disconnect Switch
155	WH/BK	Monitor to Circuit Board / Ground Fault
161	RD	Power Stud to Sample Voltage Relay
162	RD	Power Stud to Circuit Board
163	WH	Monitor to Circuit Board
165	RD	Power Stud to Base Fuse
171	RD/BK	Magnet On
175	BU	Over / Under +V
176	OR	Over 75% DC
177	RD	Main Circuit Breaker to Main Relay
177	BK/WH	Generator Hot
182A	OR	Soft Start Solenoid
198	RD	Sample Voltage Relay to Voltage Band Monitor
199	RD	Sample Voltage Relay to Voltage Band Monitor
200	BK	Main Chassis / Relay Panel Ground
201	BK	Main Chassis / Relay Panel Ground
202	BK	Valve Group Return
205	BK	Chassis Ground
206	BK	Ground Stud to Sample Voltage Relay
207	BK	Ground Stud to Circuit Board
208	BK	Chassis Ground from Disconnect Switch to Magnet Control Fuse
234	BK	CAN Data Link Shield
299	BK	Drop Relay Returns
A272	BK	Boost Relay / Sample Voltage Relay Return
307	OR	Grapple Magnet Switch
308	YL	Key Power to Main Power Relay Coil
415	GN	ECM to Voltage Band Monitor
F459	PK	Drop Time
F457	BR	ECM to Circuit Board Dropper Current Switch
F458	GN	Drop Time
F459	WH	Drop Time
G465	PK	Generator Winding Termination P1
H461	WH	Generator Hot
H462	OR	Over 75% DC
H463	BU	Over / Under +V
H464	GY	Magnet On
G889	GY	ECM to Magnet Drop Relays
G890	PU	ECM to Magnet Lift Relay
N839	GN	Magnet Lift Switch
N840	PK	Magnet Drop Switch
R807	WH	Soft Start Solenoid
944	OR	Cat Data Link (+)
945	BR	Cat Data Link (-)
C903	BU	ECM to Sample Voltage Relay
C905	OR	ECM to Circuit Board and Boost Relay
J884	PK	ECM to Current Transducer 2
J885	GY	ECM to Current Transducer 1
K900	YL	CAN Data Link (+)
K990	GN	CAN Data Link (-)
T976	YL	Generator Enable

Related Electrical Service Manuals	
Title	Form Number
Systems Operations: Troubleshooting: Testing and Adjusting:	KENR8249

Diagnostic Codes For Magnet Controller ECM (SA No. 71)	
For troubleshooting, see the procedure with the same SPN And FMI No.	
SPN / FMI	Description
SPN 5000 Generator Overheat Status	
FMI 11 Other Failure Mode	
SPN 5001 Genset System Output Voltage Range Status	
FMI 11 Other Failure Mode	
SPN 5004 Genset Softstart Active	
FMI 3 Voltage above normal	
FMI 5 Current below normal	
FMI 6 Current above normal	
SPN 5005 Genset Enable Active	
FMI 3 Voltage above normal	
FMI 5 Current below normal	
FMI 6 Current above normal	
SPN 5006 Voltage Monitor Active	
FMI 3 Voltage above normal	
FMI 6 Current above normal	
SPN 5007 Generator Duty Cycle Exceeded Status	
FMI 6 High	
SPN 5008 Magnet Forward Current	
FMI 3 Voltage above normal	
SPN 5009 Magnet Reverse Current	
FMI 3 Voltage above normal	
SPN 5010 Material Lift Switch	
FMI 3 Voltage above normal	
SPN 5011 Material Drop Switch	
FMI 3 Voltage above normal	
SPN 5012 Generator Current Boost Active Status	
FMI 3 Voltage above normal	
FMI 6 Current above normal	
FMI 5 Current below normal	
SPN 5013 Material Lift Active Status	
FMI 3 Voltage above normal	
FMI 6 Current above normal	
SPN 5014 Material Drop Active	
FMI 3 Voltage above normal	
FMI 5 Current below normal	
FMI 6 Current above normal	

\*This table pertains only to diagnostic codes with a SA of 71.



KENR8247-01  
April 2013

# Schematic

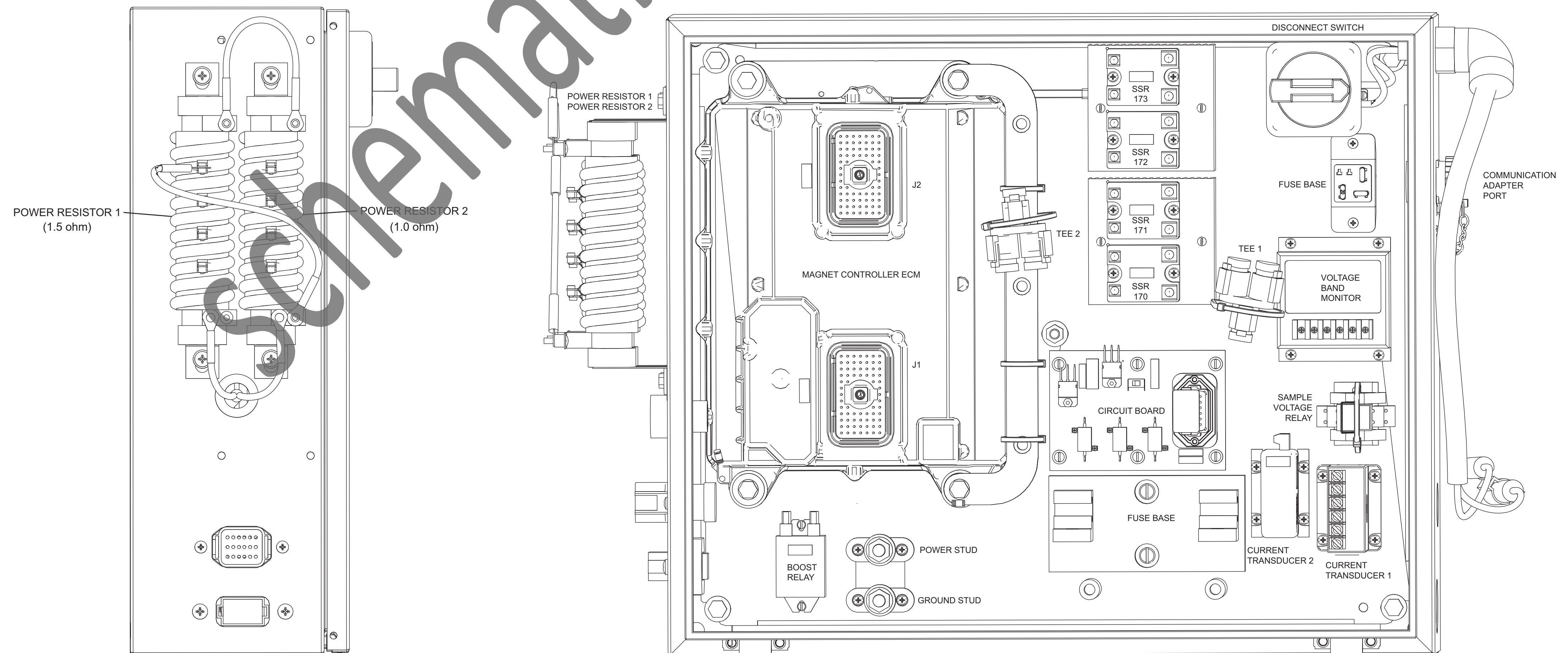
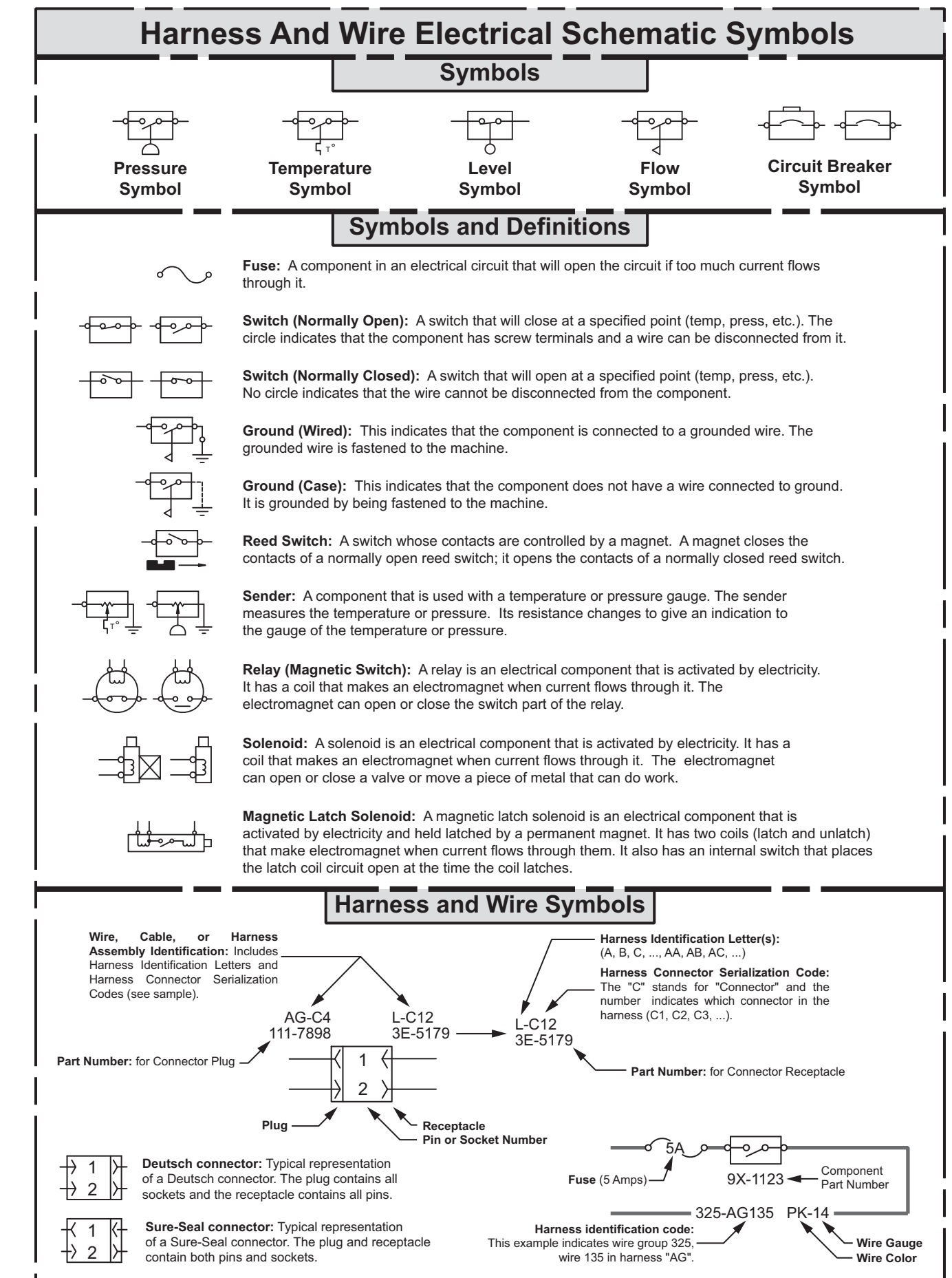
## Solid State Magnetic Controller for Material Handlers Electrical System

- |                                 |                                |                                   |                      |
|---------------------------------|--------------------------------|-----------------------------------|----------------------|
| 325D MH:<br>C4H1-UP<br>RJ1K1-UP | 330D MH:<br>C5K1-UP<br>LEM1-UP | 345C MH:<br>M2R1-UP<br>D3S1-UP    | W345C MH:<br>R5K1-UP |
| M325C MH:<br>XJA1-UP<br>PAN1-UP | M330D:<br>KRE1-UP              | M325D L MH:<br>KAG1-UP<br>KAY1-UP | M325D MH:<br>EDF1-UP |
| 385C L MH:<br>WAW1-UP           |                                |                                   |                      |

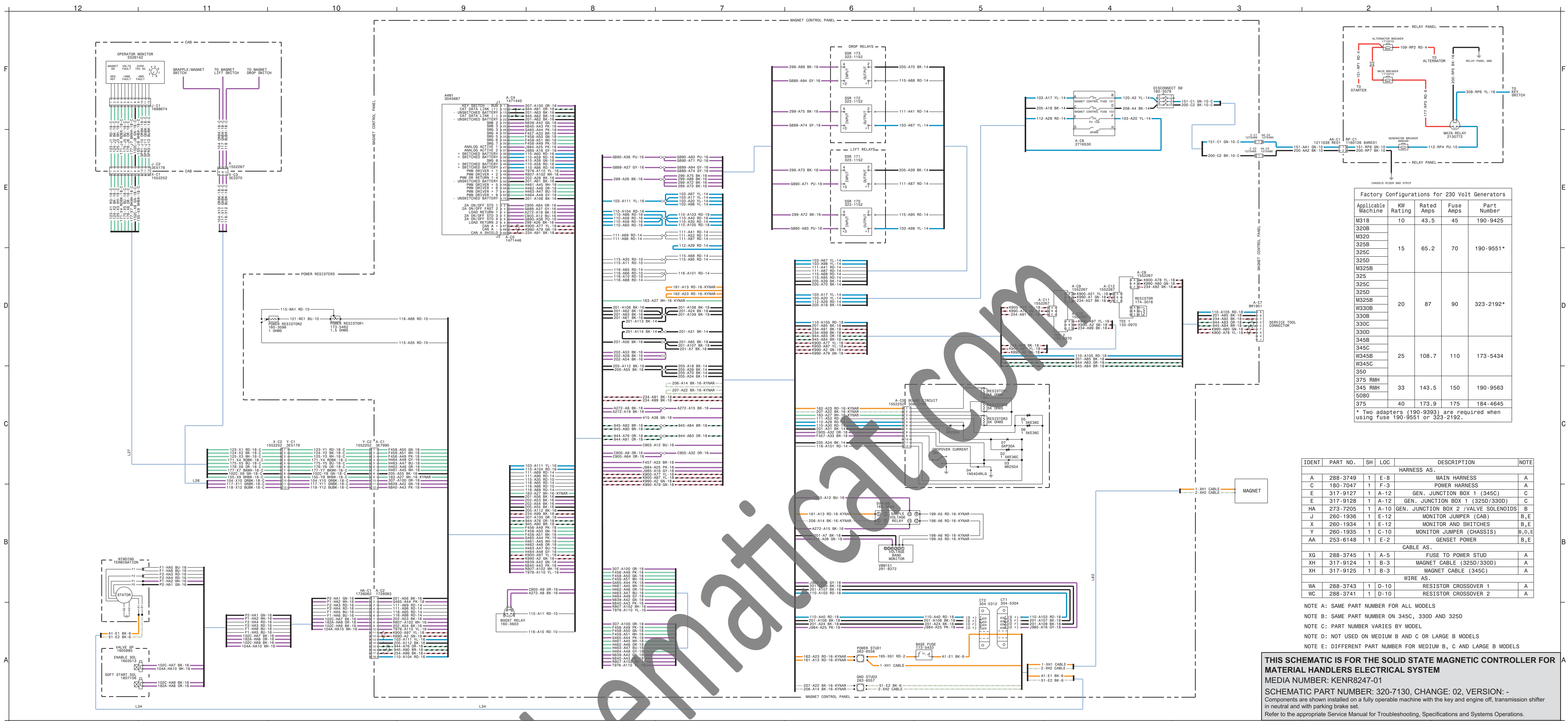
ECM Version

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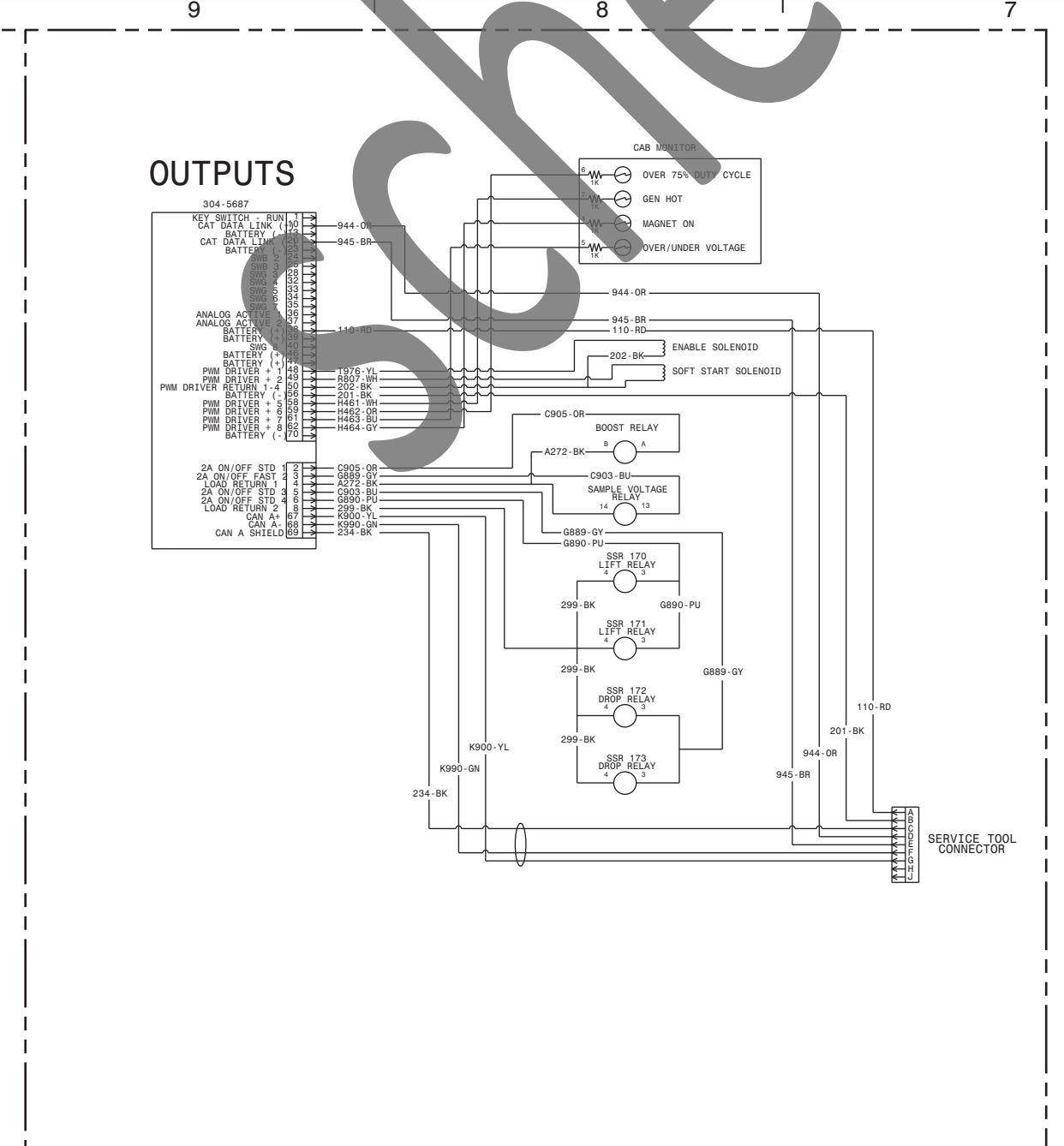
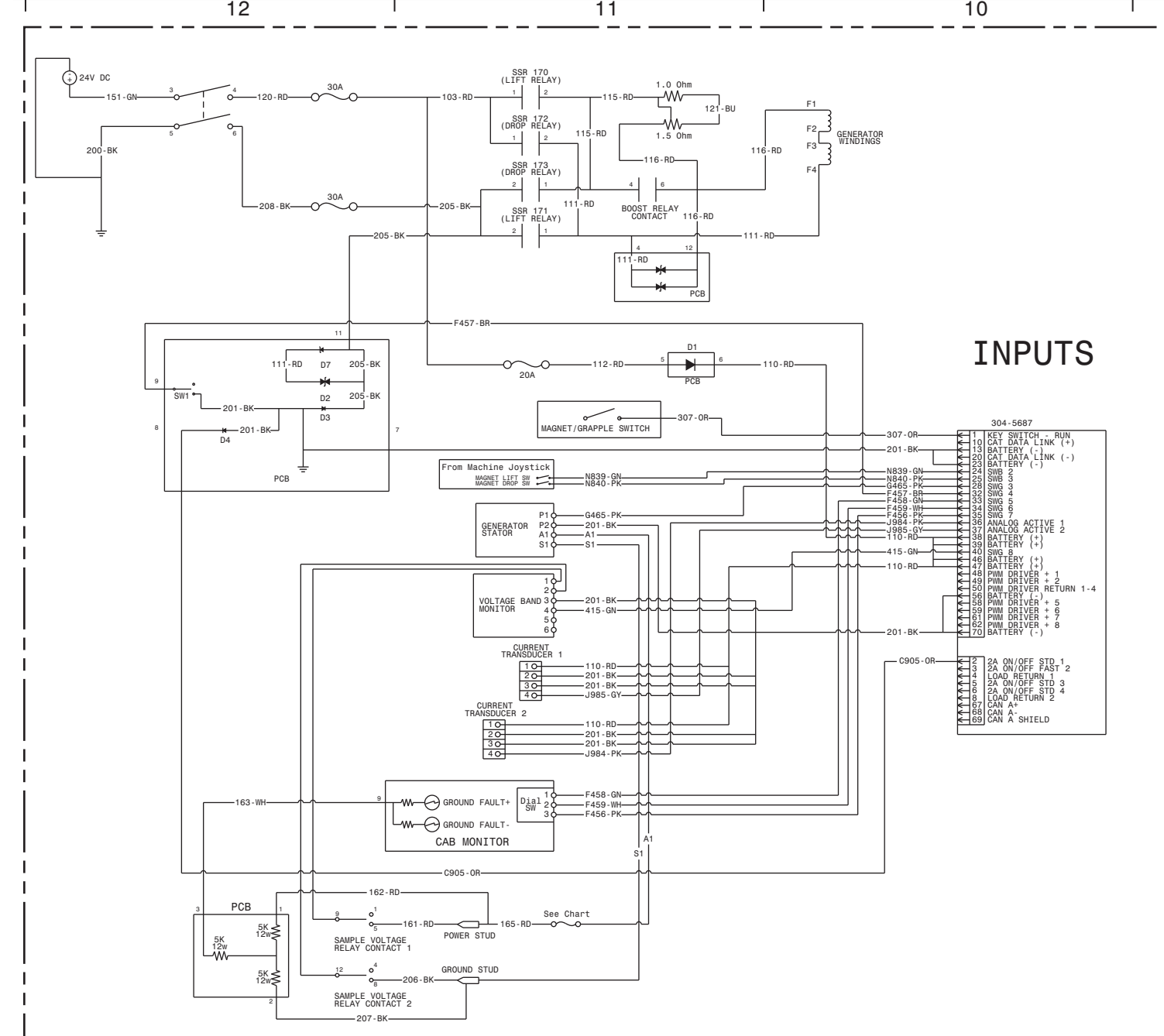
Factory Configurations for 230 Volt Generators

Applicable Machine	KW Rating	Rated Amps	Fuse Amps	Part Number
M318	10	43.5	45	190-9425
M320				
M325	15	65.2	70	190-9551*
M325C				
M325B				
M325				
M325C				
M325B				
M325B	20	87	90	323-2192*
W308				
330B				
330C				
330D				
345B				
345C				
W345B	25	108.7	110	173-5434
W345C				
350				
375 RMH	33	143.5	150	190-9563
345 RMH				
5080				
375	40	173.9	175	184-4645

\*Two adaptors (190-9398) are required when using fuse 190-9551 or 323-2192.

IDENT	PART NO.	SH	LOC	DESCRIPTION	NOTE
HARNESSES AS.					
A	288-3749	1	E-8	MAIN HARNESSES	A
C	190-7047	1	F-3	POWER HARNESSES	A
E	317-9127	1	A-12	GEN. JUNCTION BOX 1 (345C)	C
E	317-9128	1	A-12	GEN. JUNCTION BOX 2 (325D/330D)	C
HA	273-7205	1	A-10	GEN. JUNCTION BOX 2 / VALVE SOLENOIDS	B
J	260-1936	1	E-12	MONITOR JUMPER (CAB)	B,E
X	260-1934	1	E-12	MONITOR AND SWITCHES	B,E
Y	260-1935	1	C-10	MONITOR JUMPER (CHASSIS)	B,D,E
AA	253-6148	1	E-2	GENSET POWER	B,E
CABLE AS.					
XG	288-3745	1	A-5	FUSE TO POWER STUD	A
XH	317-9124	1	B-3	MAGNET CABLE (325D/330D)	A
XH	317-9125	1	B-3	MAGNET CABLE (345C)	A
WIRE AS.					
WA	288-3743	1	D-10	RESISTOR CROSSOVER 1	A
WC	288-3741	1	D-10	RESISTOR CROSSOVER 2	A

**THIS SCHEMATIC IS FOR THE SOLID STATE MAGNETIC CONTROLLER FOR MATERIAL HANDLERS ELECTRICAL SYSTEM**  
**MEDIA NUMBER: KENR8247-01**  
**SCHEMATIC PART NUMBER: 320-7130, CHANGE: 02, VERSION: -**  
 Components are shown installed on a fully operable machine with the key and engine off, transmission shifter in neutral and with parking brake set.  
 Refer to the appropriate Service Manual for Troubleshooting, Specifications and Systems Operations.



WIRE GROUP COLOR DESCRIPTIONS

Color	Description
Black	GROUND CIRCUIT
White	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS OFF
Blue	WIRES THAT HAVE SYSTEM VOLTAGE WHEN THE KEY SWITCH IS ON
Red	GENERATOR POWER
Orange	MAG CONTROL ECM
Green	MONITOR CIRCUIT
Yellow	CAN DATA LINK
Pink	CAN DATA LINK A
Purple	GENERATOR GROUND

OTHER COLOR DESCRIPTIONS

Color	Description
Blue	HIGHWAYS

SYMBOL DESCRIPTION

+	CIRCUIT CONNECTED
+	CIRCUIT NOT CONNECTED
+	ELECTRICAL CONNECTION TO MACHINE STRUCTURE
+	INTERNAL ELECTRICAL CONNECTION TO SURFACE OF COMPONENT
+	CONNECTOR
+	CIRCUIT GROUPING DESIGNATION
+	ATCH WIRE, CABLE, COMPONENT
+	SPLICE
+	BLADE, SPADE, RING OR SCREW TERMINAL

ABBREV COLOR

RD	RED
WH	WHITE
OR	ORANGE
YL	YELLOW
PK	PINK
BK	BLACK
GY	GRAY
PU	PURPLE
BR	BROWN
GN	GREEN
BU	BLUE