

NEW HOLLAND TS90 TS100 TS110

Section 3 – Electrical System Supplement

REPAIR MANUAL



NEW HOLLAND

SERVICE

TS90, TS100, TS110 REPAIR MANUAL CONTENTS

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SECTION 2 - ENGINE



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Wiring Diagrams

(Power Shuttle and with cab models from Serial no. 139307B)

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Circuit 10 Wipers & Washers	6400-6790
Circuit 11 Processor Feed and Ground connections	6800-7190
Circuit 12 Air-Conditioning & Heating	7200-7590

SECTION 3 - ELECTRICAL SYSTEM

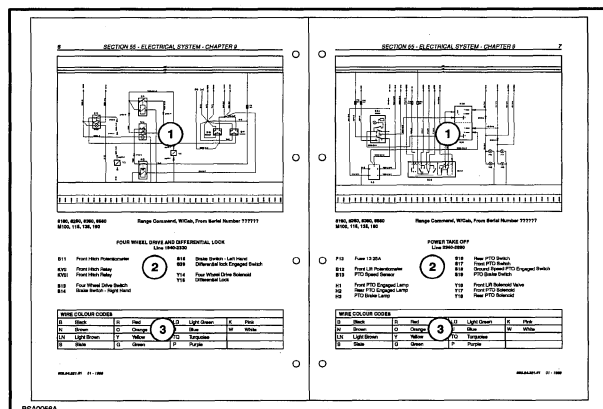
HOW TO USE THE LINEAR WIRING DIAGRAMS

The wiring diagrams have been drawn in a linear style. This means that the complete wiring diagram has been drawn over a number of pages but if joined together would make a complete diagram.

There are a number of guides to help assist in reading and understanding the wiring diagrams.

1. The wiring diagrams (1) are located at the top of each page. The title and key (2) are located below the diagram and the wire colour code table (3) is located below the key.

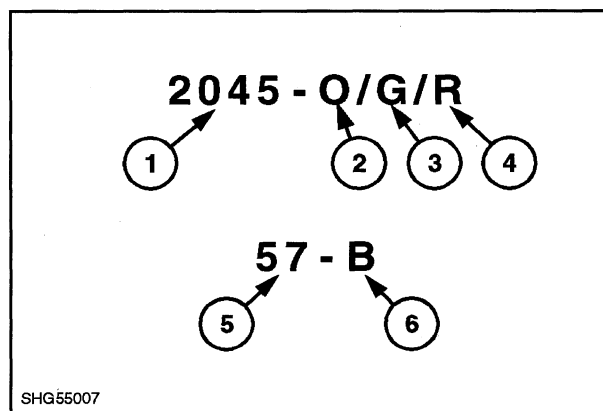
The title under the diagram details the models of the range that are applicable, the model configuration, ie, transmission type, with or less cab and the serial number of the tractor to which the diagrams apply. The key then details all the components used within that particular page.



1

2. Every component and connector has its own unique reference number.

3. Every wire has a code assigned to it (1) this code refers to its function, the code is not marked on the actual wire. A key of all wire codes can be found at the rear of this section. Letters (2), (3) and (4) indicate the wire colour. The first letter (2) indicates the main wire colour. The second letter (3) indicates tracer wire colour, the third letter (4) indicates the band colour, for example wire reference (5) and number 57 is an earth wire, letter (6) B indicates its a solid black wire.



2

4. Each component and connector pin appears only once in the electrical drawings and has its own location point on the page.
5. The wiring diagrams are drawn in sections. However where a single component is used in a number of circuits such as a processor or multi function switch, it is drawn either on its own or on the circuit which it influences the most.

SECTION 3 - ELECTRICAL SYSTEM

6. The wiring is drawn between four lines three across the top of the page and one at the bottom of the page.

The two upper most lines (1) marked +30A and +30B are the constant live lines.

Below the +30 line is the +15 (2) which is the ignition key on live line.

The lowest line (4) is the ground/earth line.

On the lower part of the page (3) a line is marked with numbers increasing by ten (10-20-30, etc.). This is the line used to reference wires and components.

Example

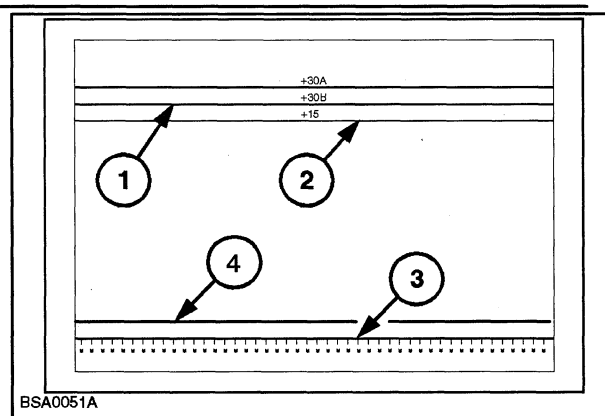
Figures 4 and 5 show a basic circuit drawn over two pages.

Power comes in from the ignition on live line +15 through fuse F3, which is located at point 230.

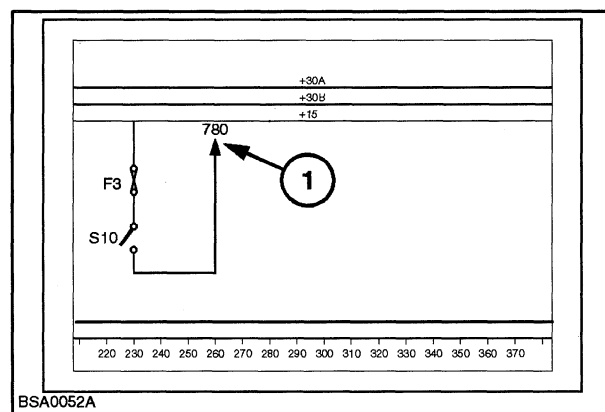
Power comes to switch S10. If the switch is operated, power continues up and stops with an arrow (1) and a number. The arrow indicates the wire continuing to another page. The Number 780 refers to the line reference where it appears on a new page. Note the line reference directly below the wire being traced ie. 260. Following the line reference until 780 is found. Using either the index or following the page reference line. When 780 is located on the reference line the number 260 will be observed at the top of the page. Note the arrow points back to the previous part of the circuit. From this point follow the wire down to solenoid 'Y3'. The diagram now indicates that power goes to ground.

Where a circuit originates or terminates at a processor, ie, Transmission processor, EDC processor, Electronic Management Unit or Instrument cluster, the wire in the diagram is ended with a small circle and a connector reference number. A white circle (1) indicates a processor, a black circle (2) indicates an instrument cluster.

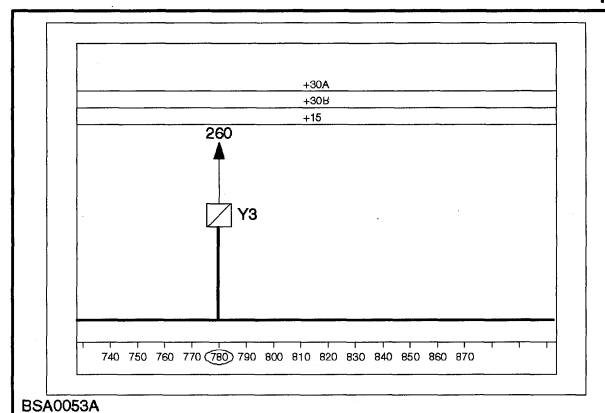
The diagrams have been constructed to ensure the minimum number of pin-outs, detailed above, are used. Due to this, many diagrams have been spread across 2 sheets and it will be necessary to follow from one page across to the next to complete a circuit.



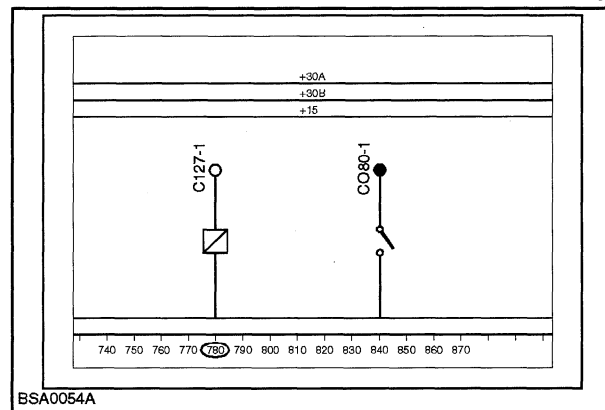
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4



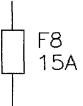
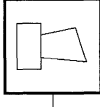
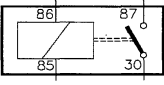
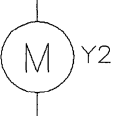
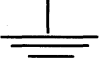
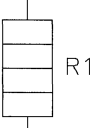
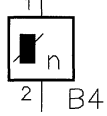
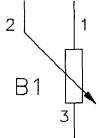
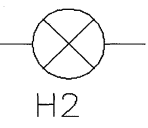
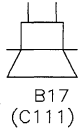
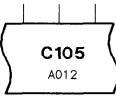
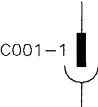
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SECTION 3 - ELECTRICAL SYSTEM

Symbols

Fuse		Horn	
Relay		Diode	
Motor		Switch	
Earth/ground point		Resistor	
Sensor		Electro-Valve/solenoid	
Potentiometer		Temperature Switch	
Lamp		Pressure Switch	
Speaker		Processor	
Connector pin			

SECTION 3 - ELECTRICAL SYSTEM

SYMBOL	DRAWING LOCATION	DESCRIPTION
(A) PROCESSORS, MODULES AND PANELS		
A001	7140	Transmission And EDC Processor
A002	1080	Gear Shift Display Module
A003	1740	EDC Panel
A004	4320	Radio
A005	6810	Diagnostic Connector
A006	4540	External Buzzer Unit
A007	7020	Instrument Cluster A (C079)
A008	7020	Instrument Cluster B (C080)
A009	7000	Instrument Cluster C (C081)
(B) SENSORS, SENDERS AND POTENTIOMETERS		
B1	6280	Engine Oil Pressure Sensor
B2	6210	Engine Coolant Temperature Sensor
B3	6320	Fuel Tank Sender
B4	6370	Radar
B5	2160	Axle Speed Sensor
B6	1740	Height Limit Potentiometer
B7	1740	Slip Limit Potentiometer
B8	1740	Drop Rate Potentiometer
B9	1740	Draft/Position Potentiometer
B10	2310	Rocker Shaft Potentiometer
B11	1930	Quadrant Lever Potentiometer
B12	2160	Draft Pin Left
B13	2310	Draft Pin Right
B14	7520	Temperature Control Potentiometer
B15	4350	Speaker
B16	4290	Speaker
B17	3620	Horn
B18	1550	Clutch Pedal Potentiometer
B19	1480	Synchroniser Position Potentiometer
(C) SPECIAL CONNECTORS		
C226	3100	Four Wheel Drive Braking Connector (Synchro Command Only)
(E) MISCELLANEOUS		
E1	7400	Air Conditioning Compressor Clutch
E2	4170	Interior Light
E3	3750	Console Light
(F) FUSES		
F1	4590	Head Lamp Main 15A
F2	4600	Head Lamp Dip 15A
F3	5020	Side Lamp RH 15A
F4	5150	Side Lamp LH 15A
F5	5870	Work Lamp Front Low 10A
F6	5370	Work Lamp Rear Fender 15A

SECTION 3 - ELECTRICAL SYSTEM

SYMBOL	DRAWING LOCATION	DESCRIPTION
F7	5490	Work Lamp Front And Rear Cab Roof 20A
F8	240	Fuel Shut Off Solenoid 10A
F9	2570	Gauges And External Switches 10A
F10	4440	Hazard Lights 15A
F11	4570	Horn, Flashers, Cigar Lighter, Roof Beacon. 30A
F12	2450	EDC 10A
F13	540	Transmission Solenoids 15A
F14	7130	EDC 10A
F15	3050	Stop Lamps, 4wd, Diff. Lock 15A
F16	7230	Air Conditioning Heater Fan 25A
F17	6510	Wiper Washer, Front Wiper, Rear Wiper Console Lamp 20A
F18	4430	Turn Indicators 10A
F19	320	Thermostart 25A
F20	350	Processor 'keep Alive Memory' (KAM) 5A
F21	3220	PTO 5A
F22	4070	Radio, Implement Socket Switch And Relay 5A
F23	4080	Accessories, Interior Lamp, Radio KAM, EIC Buzzer. 20A
F24	4100	Interior Light 10A
FL1	20	Fuse Link
FL2	110	Fuse Link

(H) LAMP AND LIGHTS

H1	3520	PTO Lamp
H2	1740	EDC Status Lamp
H3	1740	Slip Lamp
H4	1740	Raise Lamp
H5	1740	Lower Lamp
H6	5130	Front Indicator Lamp LH ISO
H7	5170	Front Indicator Lamp RH ISO
H8	4820	Rear Indicator Lamp LH ISO
H9	4820	Rear Indicator Lamp RH ISO
H10	5090	Front Indicator Lamp LH NASO
H11	4740	Front Indicator Lamp RH NASO
H12	5100	Rear Indicator Lamp LH NASO
H13	4750	Rear Indicator Lamp RH NASO
H14	4890	Head Lamp LH
H15	4920	Head Lamp RH
H16	5130	Front Side Lamp LH
H17	5170	Front Side Lamp RH
H18	4820	Rear Brake/Tail Lamp LH
H19	4820	Rear Brake/Tail Lamp RH
H20	5420	Licence Plate Light Top RH
H21	5390	Licence Plate Light Top LH
H22	5010	Licence Plate Lamp Lower
H23	5750	Upper Front Work Lamp LH

SECTION 3 - ELECTRICAL SYSTEM

SYMBOL	DRAWING LOCATION	DESCRIPTION
H24	5810	Upper Front Work Lamp RH
H25	5730	Lower Front Work Lamp LH
H26	5790	Lower Front Work Lamp RH
H27	5380	Upper Rear Work Lamp LH
H28	5410	Upper Rear Work Lamp RH
H29	5490	Lower Rear Work Lamp LH
H30	5520	Lower Rear Work Lamp RH
H31	5300	Licence Plate Lamp L/Cab
(G) CHARGING		
G1	10	Battery
G2	70	Alternator
(K) RELAYS		
K	3870	Implement Socket Relay
K1	80	Ignition Relay
K2	140	Starter Relay
K3	4460	Flasher Unit Relay
KXI+XII	4690	Flasher Mode Relay
KA	2930	Diff Lock Relay (12x12 Only)
KB	5880	Front Work Lamp Relay
KC	5380	Rear Work Lamp Relay
KD	5710	Lower Front Work Lamp Relay
KE	5500	Lower Rear Work Lamp Relay
KF	230	Engine Shut Down Relay
KG	2930	Diff Lock Relay (12x12 Only)
KV+VI	3400	PTO Relay
KII	470	Accessory Socket Relay
KIV	3780	Remote Valve Relay
KVII	310	Thermostart Relay
KVIII	8540	Intermittent Front Wiper Relay
KIX	8700	Intermittent Rear Wiper Relay
KX	4650	Multi-function Switch Unload Relay
(M) MOTORS		
M1	40	Starter Motor
M2	6540	Front Wiper Motor
M3	6760	Rear Wiper Motor
M4	6560	Washer Motor
M5	6640	Washer Motor
M6	7340	Blower Motor
M7	5960	Air Seat

SECTION 3 - ELECTRICAL SYSTEM

SYMBOL	DRAWING LOCATION	DESCRIPTION
(MF) MAXI FUSE		
MF1	50	To Ignition Relay And Supply To Fuse 9/14/15/16/17/18/21.
MF2	260	To Ignition Switch And Supplying Fuses 8/10/11/12/13/20/22. And Thermostart Module Fuse 19
MF3	4590	Turn Switch And Supplying Fuses 1/2/3/4.
MF4	5870	Work Lamps Fuses 5/6/7.
MF5	4080	Accessories Fuses 23/24.
MF6	3910	40 Amp. Implement Socket.
(P) CLOCKS		
P2	4260	Clock
(R) RESISTORS		
R1	320	Thermostart Coil
R2	250	Fuel Injection Pump Wax Motor
R3	7290	Blower Speed Resistor
R4	4030	Cigar Lighter
R5	7340	Blower Speed Resistor
(S) SWITCHES		
S1	300	Ignition Switch
S2	170	Start Inhibitor Switch
S3	6240	Engine Oil Pressure Switch
S4	6130	Low Charge Pressure Switch (CCLS)
S5	6090	Hydraulic Oil Temp. Switch
S6	6070	Hydraulic Filter Blocked Switch
S7	6170	Steering Pressure Switch
S8	6190	Transmission Pressure Switch
S9	6070	Transmission Oil Temperature Switch
S10	6040	Hand Brake Switch
S11	6010	Brake Fluid Level Switch
S12	6150	Air Filter Vacuum Switch
S13	2850	FWD Switch
S14	2930	Differential Lock Switch
S15	2990	Differential Lock Engagement Light Switch
S16	3120	Brake Switch Right Hand
S17	3120	Brake Switch Left Hand
S18	3310	PTO Switch
S19	3460	Seat Switch
S20	3260	540/1000 PTO Speed Switch
S21	670	Clutch Pedal Switch
S22	460	Creeper Switch
S23	910	Shuttle Dump Switch
S24	870	Up Shift Switch
S25	890	Down Shift Switch
S26	930	High Range Switch

SECTION 3 - ELECTRICAL SYSTEM

SYMBOL	DRAWING LOCATION	DESCRIPTION
S27	950	Low Range Switch
S28	970	1-4 Range Switch(16x16) / Hi-med Sw. (24x24)
S29	990	5-8 Range Switch
S30	2530	Raise Work Switch
S31	2610	Fender Switch Left
S32	2650	Fender Switch Right
S33	4600	Indicator Switch
S34	4460	Hazard Switch
S36	5860	Front Upper Lamp Switch
S37	5650	Front Lower Lamp Switch
S38	5380	Rear Lamp Switch
S39	6460	Front Wiper And Washer Switch
S40	6700	Rear Wiper And Washer Switch
S41	7400	Air Con High Low Pressure Switch
S42	7400	Air Con Low Pressure Cut Out Switch
S43	7530	Air Con Temp. Exchange Control Switch
S44	7270	Blower Speed Switch
S45	4150	Interior Light Door Switch
S46	4200	Interior Light Door Switch
S47	3870	40 Amp. Terminal And External 40 Amp. 4 Pin Power Switch
S48	3670	Beacon Switch
S49	3780	Remote Valve Switch
S50	760	Transmission Oil Pressure Switch
S51	950	1st / 2nd Switch
S52	990	3rd / 4th Switch
S53	250	Thermo Switch For Wax Motor
S57	610	Forward/Reverse Shuttle Lever

(X) POWER SOCKETS

Xi	3850	40 Amp. Screw Terminal
X2	4120	Accessory Socket
X3	3960	Implement Status Socket
X4	4970	Trailer Socket
X5	3890	Four Pin 40 Amp. Socket
X6	3670	Roof Beacon Socket LH
X7	3710	Roof Beacon Socket RH

(Y) SOLENOID VALVES

Y1	210	Fuel Shut Off Solenoid
Y2	280	Electric Fuel Pump
Y3	2880	Fwd Solenoid
Y4	2970	Differential Lock Solenoid
Y5	3500	PTO Solenoid
Y6	1370	Creeper Solenoid
Y7	1220	PWM Valve 1
Y8	1250	PWM Valve 2
Y9	1280	PWM Valve 3
Y10	1310	PWM Valve 4
Y11	1940	Raise Solenoid EDC Valve

SECTION 3 - ELECTRICAL SYSTEM

SYMBOL	DRAWING LOCATION	DESCRIPTION
Y12	1940	Lower Solenoid EDC Valve
Y13	3790	Remote Valve Solenoid
Y14	1250	Dump Solenoid
Y15	1280	Lo - PWM
Y16	1310	Hi - PWM
Y18	1410	Forward PWM
Y19	1440	Reverse PWM

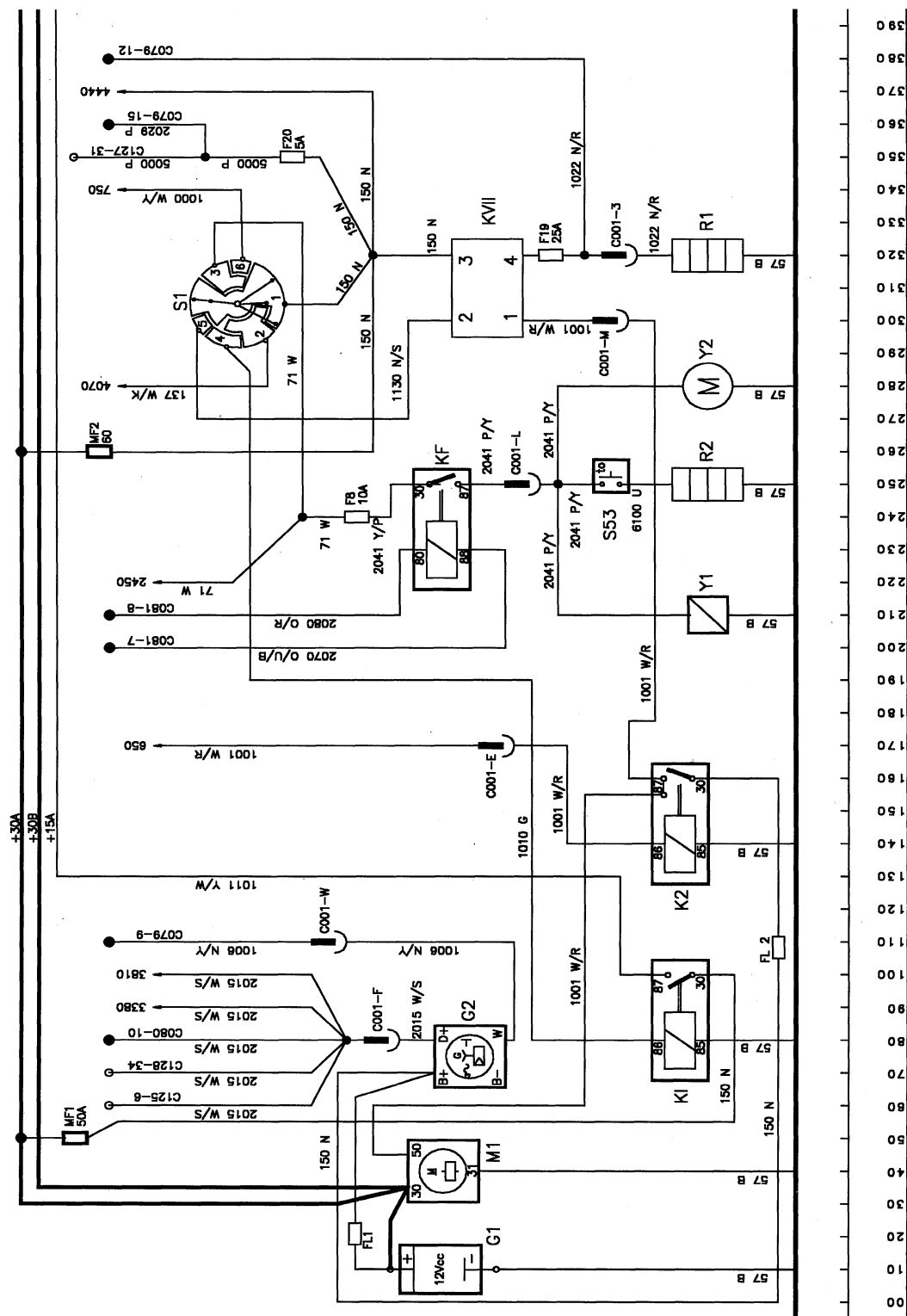
SECTION 3 - ELECTRICAL SYSTEM

WIRING DIAGRAMS:

TS SERIES: Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

Wiring Diagrams Circuit Description		Line Reference Range
Circuit 1	Starting, Charging, Thermostart, Fuel Injection Pump	0-390
Circuit 2	Transmission Circuits	400-1590
Circuit 3	Electronic Draft Control	1600-2790
Circuit 4	Four Wheel Drive and Differential Lock	2800-3190
Circuit 5	Power Take Off	3200-3590
Circuit 6	Cab Accessories	3600-4390
Circuit 7	Main Lamps, Indicators & Hazards	4400-5190
Circuit 8	Work Lamps	5200-5990
Circuit 9	Sensors / Senders	6000-6390
Circuit 10	Wipers & Washers	6400-6790
Circuit 11	Processor Feed and Ground connections	6800-7190
Circuit 12	Air-Conditioning & Heating	7200-7590

SECTION 3 - ELECTRICAL SYSTEM



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

STARTING, CHARGING, THERMOSTART, FUEL INJECTION PUMP

line 0-390

STARTING

FL1 Fuse Link
FL2 Fuse Link
G1 Battery
K1 Ignition Relay
K2 Start Relay
M1 Starter Motor and Solenoid
S1 Ignition Switch

CHARGING

G2 Alternator

THERMOSTART AND FUEL SYSTEM

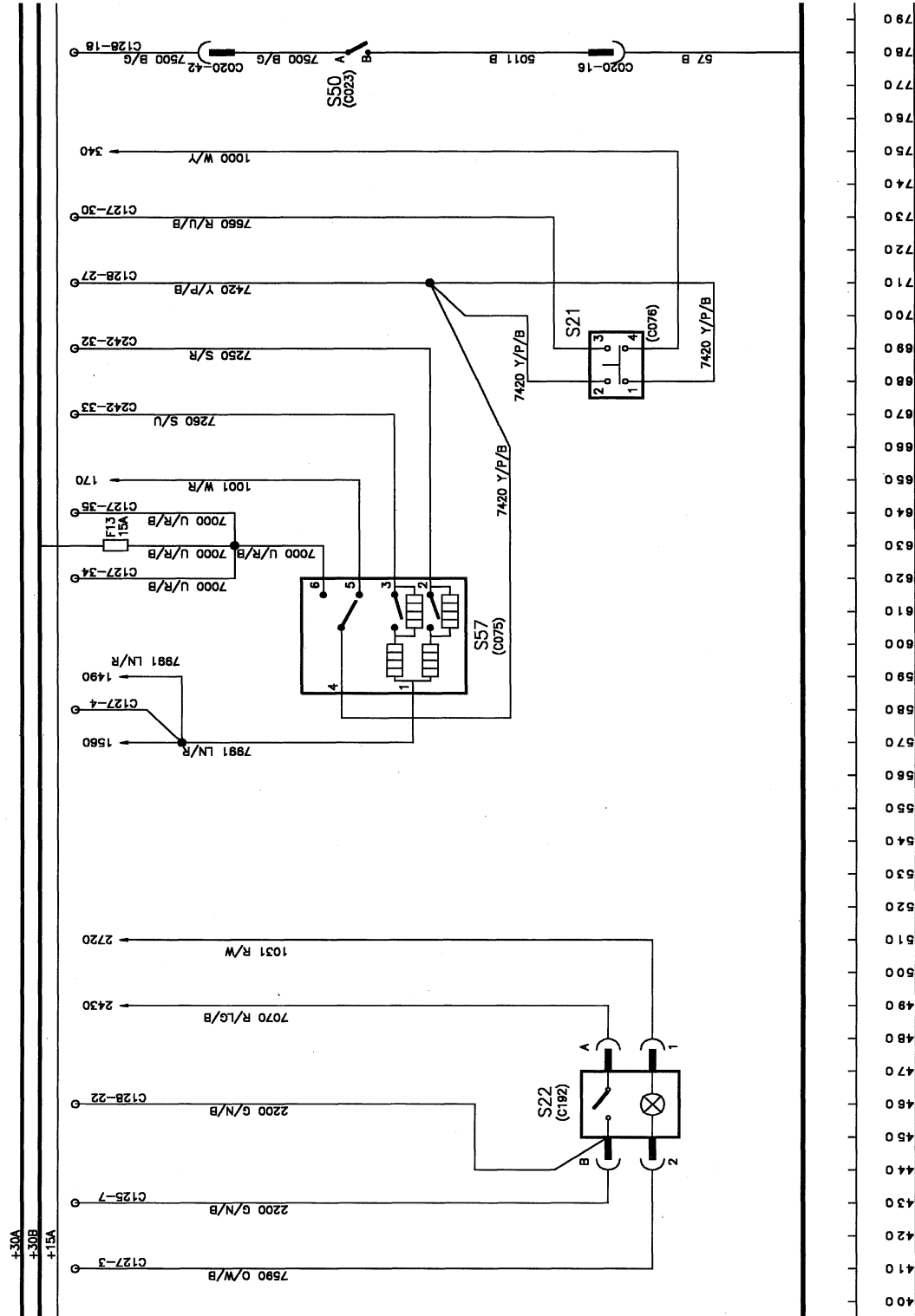
F8 10A, Shut off Solenoid Fuse
F19 25A Fuse

KV11 Thermostart relay
KF Fuel Shut Off Relay
R1 Thermostart coil
R2 Fuel Injection Pump Wax Motor
S53 Thermostatic Switch
Y1 Shut Off Solenoid
Y2 Electric Lift Pump
MF1 Maxi Fuse 1 50A
MF2 Maxi Fuse 2 60A
F20 5A, Processor 'Keep alive memory' Fuse

WIRE COLOUR CODES

B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

SECTION 3 - ELECTRICAL SYSTEM



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

TRANSMISSION SYSTEM
Line 400-790

- F13** 15A, Transmission Fuse
- S21** Clutch Pedal Switch
- S22** Creeper Switch
- S50** Transmission Oil Temperature Switch
- S57** Forward/Reverse Shuttle Lever

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

3-16



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

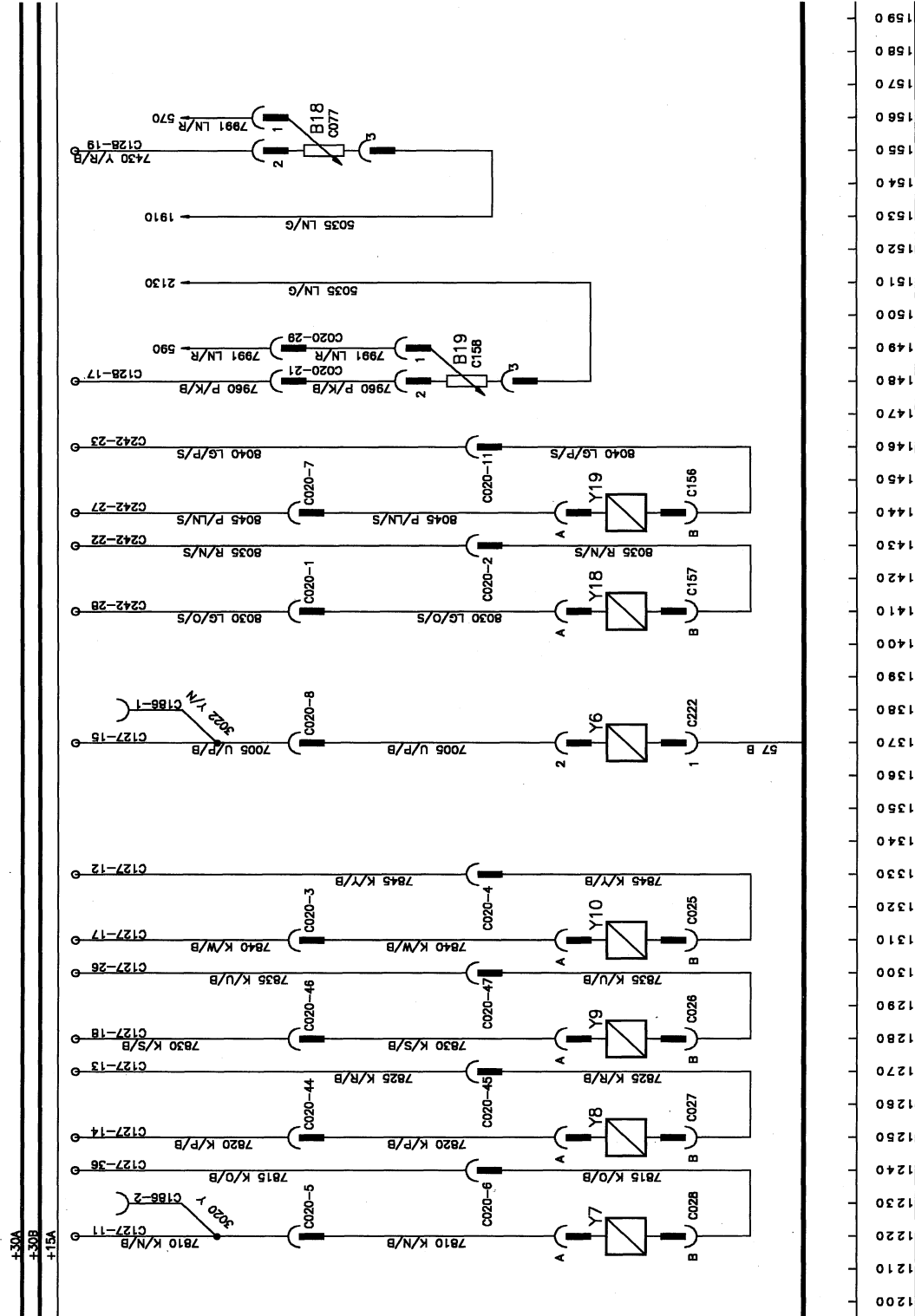
TRANSMISSION SYSTEM

Line 800-1190

- | | | | |
|-------------|---------------------|------------|-------------------|
| A002 | Gear Display Module | S26 | High range switch |
| S24 | Upshift switch | S27 | Low range switch |
| S25 | Downshift switch | S28 | 1-4 range switch |
| | | S29 | 5-8 range switch |

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

3-18



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

TRANSMISSION SYSTEM

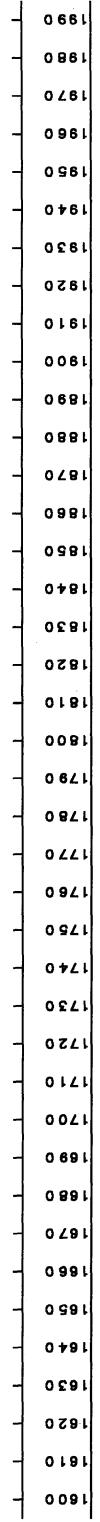
Line 1200-1590

B18	Clutch pedal potentiometer	Y9	PWM Valve 3
B19	Forward/reverse synchroniser potentiometer	Y10	PWM Valve 4
Y6	Creep solenoid	Y18	PWM Valve Forward
Y7	PWM Valve 1	Y19	PWM Valve Reverse
Y8	PWM Valve 2		

WIRE COLOUR CODES

B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

3-20



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

ELECTRONIC DRAFT CONTROL

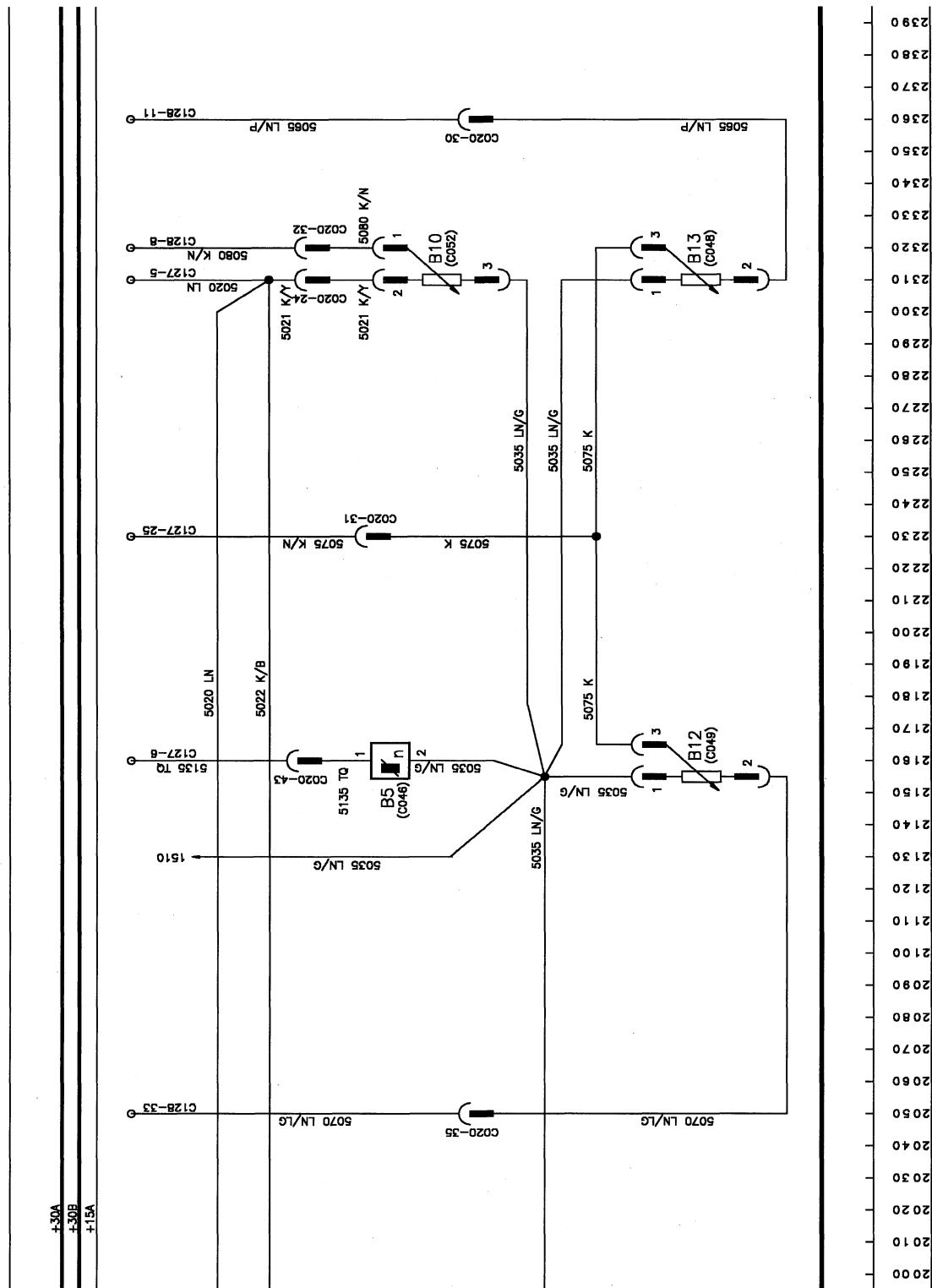
Line 1600-1990

A003	EDC Panel	H2	Status Lamp
B6	Height Limit Potentiometer	H3	Slip Lamp
B7	Slip Limit Potentiometer	H4	Raise Lamp
B8	Drop Rate Potentiometer	H5	Lower Lamp
B9	Draft / position Potentiometer	Y11	Raise Solenoid
B11	Lift lever potentiometer	Y12	Lower Solenoid

WIRE COLOUR CODES

B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

SECTION 3 - ELECTRICAL SYSTEM



TS SERIES

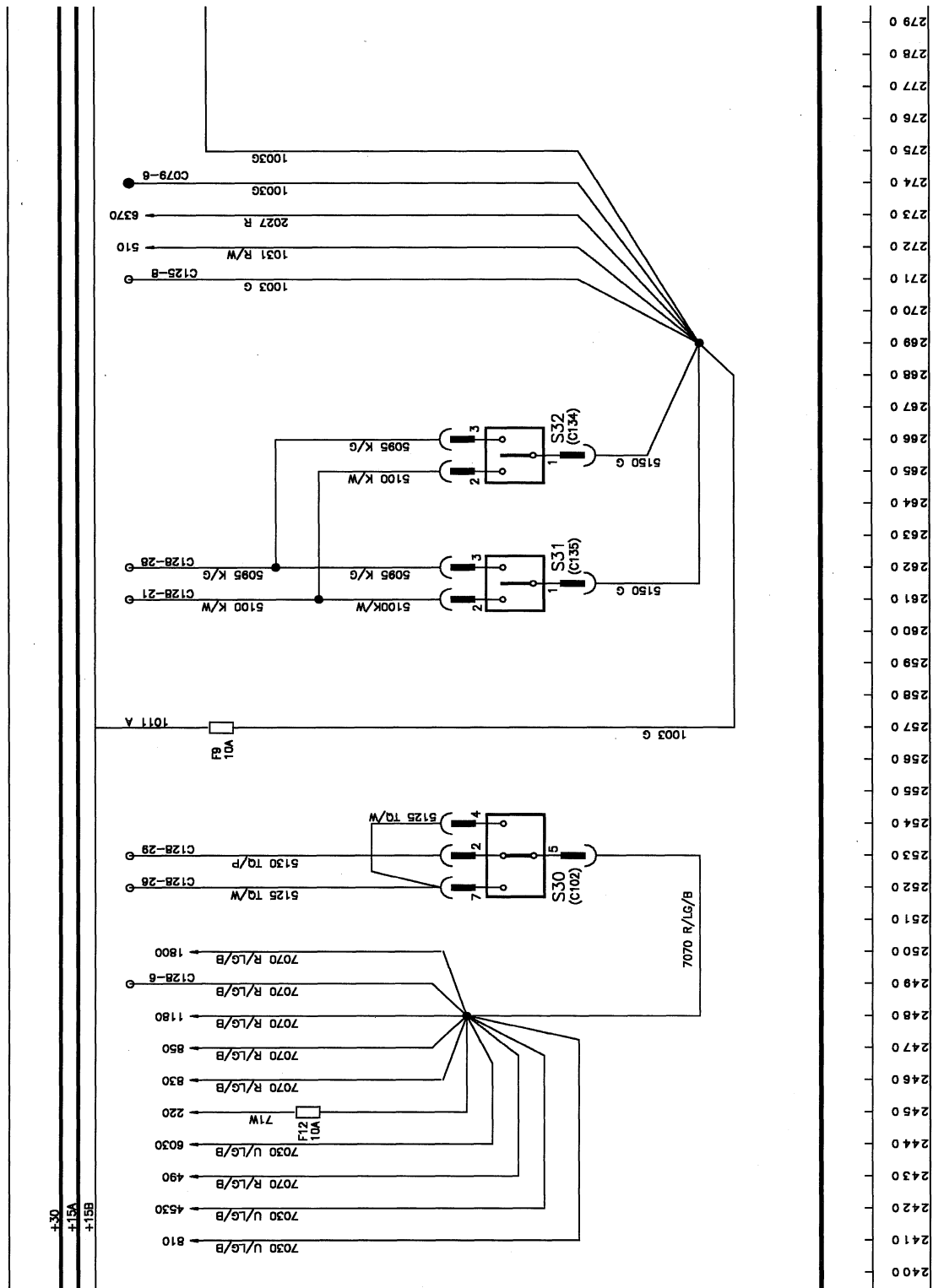
Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

ELECTRONIC DRAFT CONTROL
Line 2000-2390

- B5 Axle speed sensor
B10 Lift arm shaft potentiometer
B12 Draft pin left
B13 Draft pin right

WIRE COLOUR CODES							
B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

SECTION 3 - ELECTRICAL SYSTEM



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

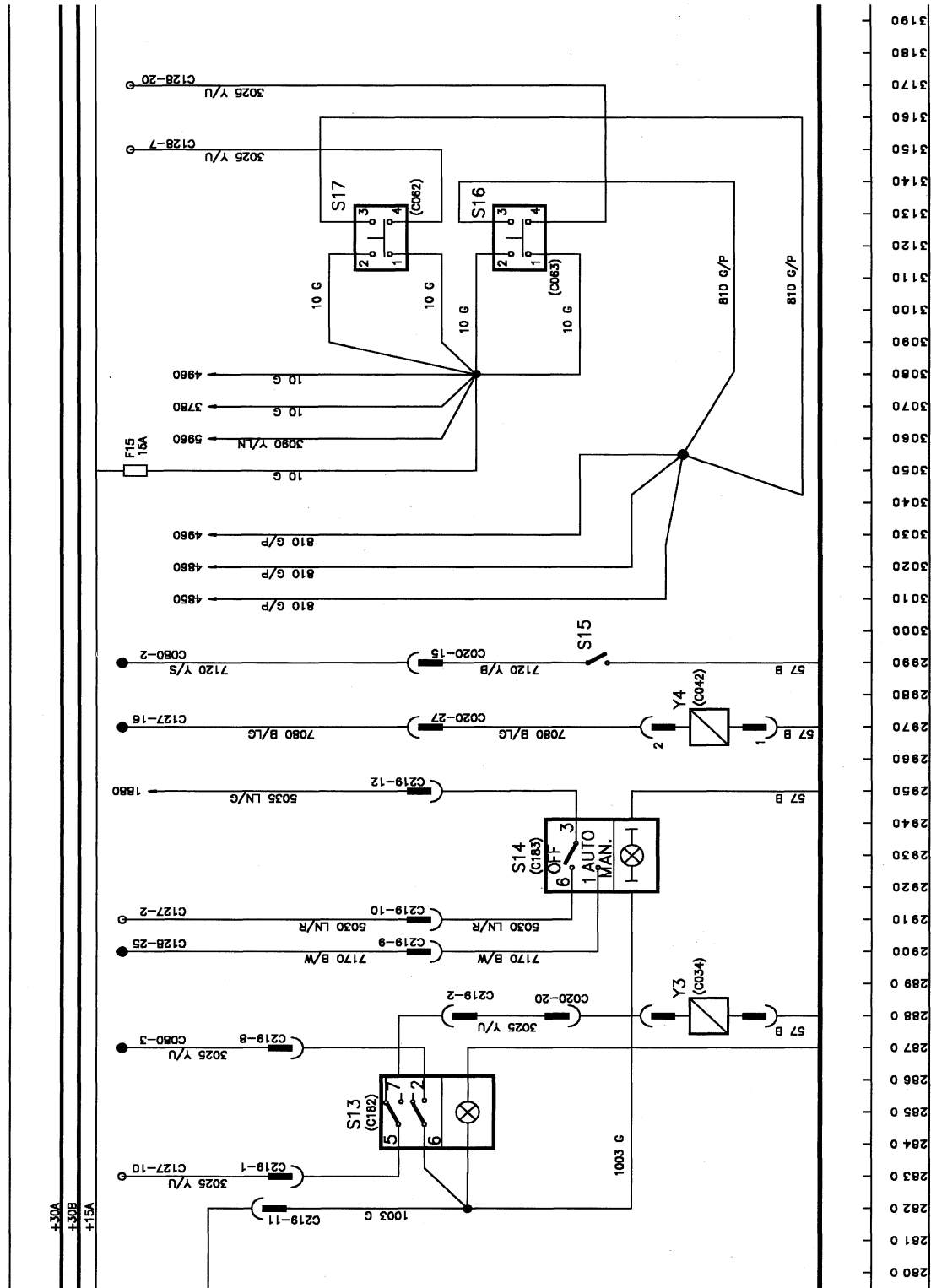
ELECTRONIC DRAFT CONTROL

Line 2400-2790

- | | | | |
|-----|--|-----|--------------------------|
| F9 | 10A, Gauges and external switches fuse | S30 | In cab Raise/work switch |
| F12 | 10A, EDC fuse | S31 | Fender switch, left |
| | | S32 | Fender switch, right |

WIRE COLOUR CODES					
B	Black	R	Red	LG	Light Green
N	Brown	O	Orange	U	Blue
LN	Light Brown	Y	Yellow	TQ	Turquoise
S	Slate	G	Green	P	Purple
				K	Pink
				W	White

SECTION 3 - ELECTRICAL SYSTEM



TS SERIES

Electroshift Transmission, (16x16 with Power Shuttle) W/Cab,

FOUR WHEEL DRIVE AND DIFFERENTIAL LOCK

Line 2800-3190

- F15** 15A, Stop lamps fuse
- S13** FWD, cab switch
- S14** Differential, cab switch
- S15** Differential Lock Engaged Switch
- S16** Brake Switch - Right Hand
- S17** Brake Switch - Left Hand
- Y3** Four Wheel Drive Solenoid
- Y4** Differential Lock Solenoid

WIRE COLOUR CODES

B	Black	R	Red	LG	Light Green	K	Pink
N	Brown	O	Orange	U	Blue	W	White
LN	Light Brown	Y	Yellow	TQ	Turquoise		
S	Slate	G	Green	P	Purple		

