RANSOMES JACOBSEN LTD
A Textron Company

Service Course Manual

G - PLEX
WD, ZV & DP SERIES

WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.

GB

SECTION 1
SPECIFICATIONS

ENGINE SPECIFICATION

TYPE:TYPE:	Kubota 15.5KW @ 3600 RPM, 3 cylinder Dioesel engine, 4 stroke, water cooled, 719cc with 12V electric start.
Model:	D722-E
Maximum Speed:	3400 RPM (No load)
Idle Speed:	1500 RPM
Oil Sump Capacity:	3.2 litres
Firing Order:	1, 3, 4, 2.
Fuel:	No. 2-D Diesel fuel (ASTM D975)

ENGINE SPECIFICATION

TYPE:TYPE:	Briggs & Stratton 13.5KW @ 3600 RPM, V twin gasoline engine, 4 stroke, air cooled, 719cc with 12V electric start.
Model:	Vanguard 350447 Type 1294
Maximum Speed:	3400 RPM (No load)
Idle Speed:	1500 RPM
Oil Sump Capacity:	1.4 litres
Fuel:	Unleaded Gasoline Minimum 85 octane

MACHINE SPECIFICATION

Frame construction:	Heavy duty fabricated steel chassis.
Transmission:	Variable displacement hydrostatic pump with high speed low torque wheel motors.
Cutting unit drive:	Direct drive hydrostatic and reel drive pumps, bi-directional hydraulic gear motor with reel control valve and backlap control valve.
Speeds:	
Cutting:	6 km/h
Transport:	12 kp/h
Reverse:	3 kp/h
Steering:	Rear Wheel Steering. Power Steering, 2.5 turns lock to lock 330mm dia. Steering Wheel
Ground pressure:	1.0 kg/cm

Brakes, Service:	Positive hydostatic braking.
Parking:	152 mm Caliper Disk
Capacities:	
Cooling System:	3.8 litres
Fuel Tank:	31 litres
Hydraulic Tank:	18.2 litres
Total System	25.7 litres
Battery:	12 volt, Type 093
Alternator	Diesel 40amp Gasoline 15amp

CUTTING UNIT

Type:	Three 559mm wide steerable floating head.
Reel:	127mm diameter, 7 / 9 / 11 knife.
Rolls:	Smooth rear roll, smooth or grooved front /rear rolls optional.
Bedknife to reel adjustment:	Opposed set screw.
Height of cut adjustment:	Micro-adjusters on front roll.
height of cut:	2.5mm to 16mm Standard blade 2mm to 16mm Tournament blade.

DIMENSIONS

Width of cut:	1.57 metres
Overall width with reels:	1.9 metres
Overall height:	1.3 metres
Overall length with reels:	2.1 metres
Overall length with catchers:	2.5 metres
Overall weight of machine	
With Reels	
Diesel:	630kg
Gasoline:	574kg
Without Reels	
Diesel:	535kg
Gasoline:	478kg
Wheel Track:	1.2 metres
Wheel Base:	1.3 metres

TYRE PRESSURES

Product	Front Wheel				Rear Wheel			
	Tyre Size	Tyre Type	Tyre Pressure		Tyre Size	Tyre Type	Tyre Pressure	
G-Plex III	20 x 10.00 - 12	Titan Smooth 2pr	9 psi	0.62 bar	20 x 10.00 - 12	Titan Smooth 2pr	9 psi	0.62 bar

VIBRATION LEVEL

The machine was tested for whole body and hand/ arm vibration levels. The operator was seated in the normal operating postion with both hands on the steering mechanism. The engine was running and the cutting device was rotating with the machine stationary.

Standard ISO 5349: 1986 Mechanical vibration. Guidelines for the measurement and the assessment of human exposure to hand-transmitted vibration.

Machine Name Series## Hand / Arm Acceleration level	Max LH or RH Accelerations m/s ^{2}		
	X Aeq	Y Aeq	Z Aeq
	3.2	2.44	1.26
Dominant Value	3. 2		

Standard ISO 2631-1: 1985 Evaluation of human exposure to whole body vibration -- Part 1: General requirements.

Machine Name Series## Whole Body Acceleration level	Floor Location Accelerations m/s ^{2}			Seat Location Accelerations m/s ^{2}		
	x	y	z	x	y	z
Mean	0.0234	0.0499	0.109	0.0050	0.0255	0.0161

SLOPES

DO NOT USE ON SLOPES GREATER THAN 15°
The slope 15° was calculated using static stability measurements according to the requirements of EN 836.

RECOMMENDED LUBRICANTS

Engine oil:

Diesel: Should be to MIL-L-2104C or to A.P.I. Classification CD

Gasoline: A.P.I. Classification SE/SF

TEMPERATURE	OIL VISCOSITY
ABOVE 4°C (39°F) 0	SAE 3
BELOW 4°C (39°F) 0	SAE 5W-30 or 10W-3

Hydraulic Oil: GreensCare 68

Grease: Lithium based.

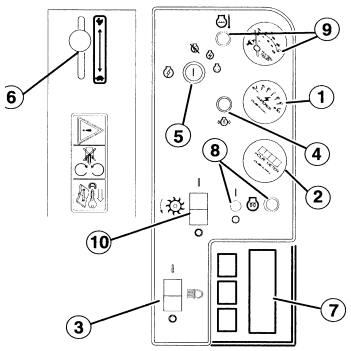
CUTTING PERFORMANCE

Cutting Frequency

7-knife reel - 7.4mm at 6km/h
9-knife reel - 5.7mm at 6km/h
11-knife reel - 4.7mm at 6km/h

SECTION 2
CONTROLS

CONTROLS



(Diesel Models)

Figure 11

1. Voltmeter
2. Hour Meter
3. Headlight Switch
4. Engine Oil Warning Light
5. Ignition Switch
6. Throttle
7. Turf Protection System (optional)
8. Pre–Heat Switch and Glow Plug Light
9. Temperature Gauge And Warning Light
10. Reel Enable Switch

Voltmeter - indicates battery condition.

Headlight Switch - turns the headlights on and off.

Engine Oil Warning Light - will come on when the engine oil pressure is too low for operation.

Ignition Switch - has four positions:

OFF - prevents all electrical functions from operating. Switch must be in the OFF position to remove the key.

ON - for normal operation.

START - engages the starter. Release the key after engine starts (the switch automatically returns to ON).

ACC. - has no function on this unit.

NOTICE

- **If the engine fails to start, or if it "dies" for any reason, the ignition switch must be returned to the OFF position before restarting is attempted. This feature prevents damage to the starter and flywheel teeth that can occur if the**

starter is engaged while the engine is running. Wait 30 seconds before restarting engine.

WARNING

- When the ignition is switched on, if the units are in the lowered position they will raise. It should be ensured that operators/ bystanders are clear of all moving parts before the ignition switch is switched on.

Throttle - Push all the way forward for normal engine operating speed, and all the way back for idle.

Hour Meter - records the number of hours the engine has run. Use the hour meter to manage a good scheduled maintenance program (refer to the Maintenance Guide).

Pre–Heat Switch and Glow Plug Light - With key switch ON, push up/forward and hold the pre–heat switch until the glow plug light goes out.

Temperature Gauge and Warning Light - gauge indicates coolant temperature and light warns of overheat situation.

Turf Protection System - can be installed as an option to warn the operator if a leak in the hydraulic system is detected.

Reel Enable Switch - This switch must be in the on position (1) in order for the reels to rotate. The switch must be in the off position (0) for the unit to be started.

CONTROL PEDALS

The **Direction/Speed Pedal** (See Fig. 12) controls speed and direction. Depress front of pedal to go forward, depress back of pedal to go backward. Increased movement of the pedal will increase speed. To slow and stop the unit, release the pedal completely. Proper braking is provided by hydrostatic pressure. If more braking is required, press on the brake pedal.

WARNING

- DO NOT attempt to force the direction control pedal to the neutral (stop) position or to change directions before coming to a complete stop. Abrupt stops or changes in direction may cause injury.

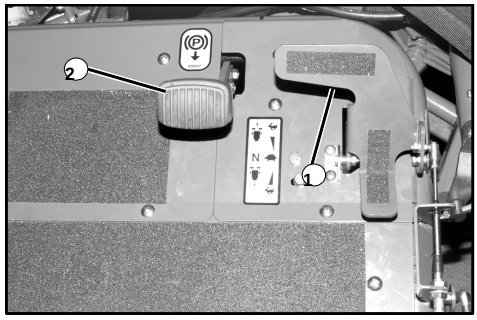


Figure 12
1. Direction/Speed Pedal
2. Brake Pedal

NOTICE

- To reduce fatigue during normal forward operation, the operator's heel should rest on the floorboard next to the pedal **(not on the lower part of the pedal).**

PARKING BRAKE PEDAL

The **Parking Brake** can be engaged by depressing the brake pedal until the unit is at a complete stop. Once the unit is stoped, push the parking brake latch foward to hold the brake pedal. Disengage the parking brake by depressing and releasing the brake pedal.

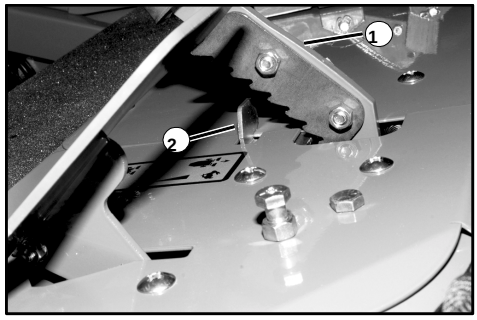


Figure 13
1. Brake Pedal
2. Park Brake Latch

PADDLE/FOOTSWITCH MOW/LIFT

The **Mow/Lift Paddle/Footswitch** lowers and raises the cutting heads.
To **Lower the Heads:** Depress the footswitch or operate the paddle. If reel enable switch is on, reel rotation starts when the heads are lowered.
To **Raise the Heads:** Depress the footswitch or operate the paddle. Reel rotation stops when the heads are raised.

ZX Models Only.

NOTICE

- **The paddle/footswitch will not operate if the rear unit has not completed its raise/lower cycle.**

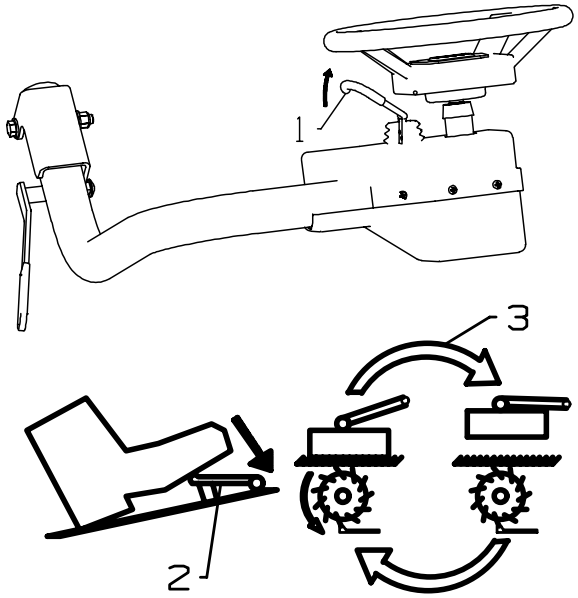


Figure 14
1. Paddle Control (Mow/Raise)
2. Footswitch Control (Mow/Raise)
3. Illustration of Paddle/Footswitch Operation

STMENTS
WARNING

- Adjustment procedures must be performed as specified by properly trained service personnel *ONLY*. If assistance is needed, contact your local Jacobsen Textron Dealer.
- To avoid the possibility of serious injury, switch the reel enable switch to the off position, lower the heads, stop the engine, remove the key and set the parking brake *BEFORE* making any adjustment.
- The rear swing out arm is to allow you easy access to the rear cutting head. The cutting heads **MUST BE** in the raised position. **DO NOT** swing the arm out with the cutting heads in the lowered position.
- *NEVER* rotate the cutting reel by pushing it with your hands or fingers. Fingers can become caught between the reel and the frame resulting in serious injury. Use a ratchet with a 9/16" socket on the end of the cutting head shaft to rotate the reel during adjustment and testing (See Fig. 15).

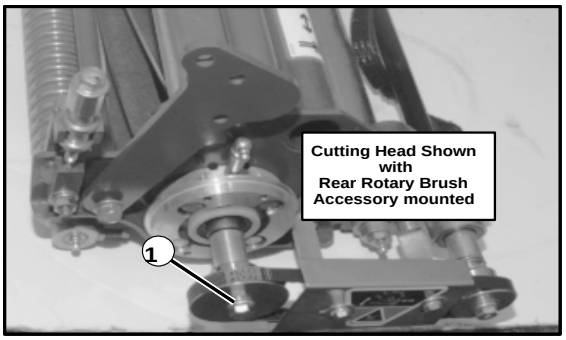


Figure 15
1. Rotate Cutting Reel with this Screw Head

BEDKNIFE ADJUSTMENT

For this adjustment, the backlap valve control lever must be in the center ***"neutral"*** position so that the reel[illegible]e rotated manually.

WARNING

- **To avoid the possibility of serious injury, *NEVER* attempt any cutting head adjustment while the engine is running.**

Any adjustment to the clearance between the reel blades and the bedknife should be done at the leading end of the reel first (the end at which each individual blade first crosses the bedknife). Then at the opposite end of the reel.

1. Loosen the ***lower*** adjustment screws at each end by turning them approximately 1/4 turn counterclockwise (See Figure 16).
2. While rotating the reel backwards, turn the ***upper*** adjustment screws (leading end first) until there is approximately (.025mm-.075mm) clearance. After adjusting both ends, recheck the leading end.

NOTICE

- ***Too much clearance*** between the bedknife and the blades will result in ***poor cutting quality. Too little clearance*** will cause ***excessive wear*** to the cutting edges and may cause damage to the bedknife, reel blades or other components.

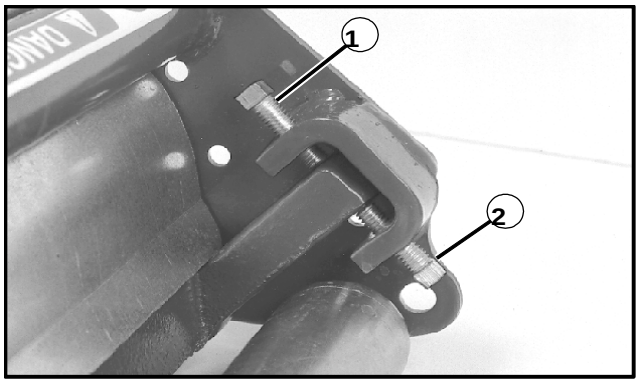


Figure 16
1. Upper Adjustment Screw
2. Lower Adjustment Screw

3. Rotate the reel forward. ***The reel must turn freely*** and you should just be able to hear the reel blades making slight contact with the bedknife.
4. After the bedknife is properly adjusted, tighten the ***lower*** adjustment screw at each end.
5. Test the cutting head by holding two strips of newsprint perpendicular to the bedknife. Rotate the reel with a wrench. The reel **must turn freely** and each blade on the reel should cut one of the two strips of paper.

HEIGHT OF CUT

NOTICE

- All three cutting heads ***MUST*** be accurately set at the same height of cut to insure an even cut.
- Bedknife adjustment must be made before setting the height of cut.

1. Set the height of cut on the gauge block by turning the wingnut until the distance between the bottom of the screw head and the top of the gauge block equals the desired height of cut (See Fig. 18).
2. Loosen the locking nut on **one** of the front roller adjusting brackets just enough to allow adjustment (See Fig. 17).

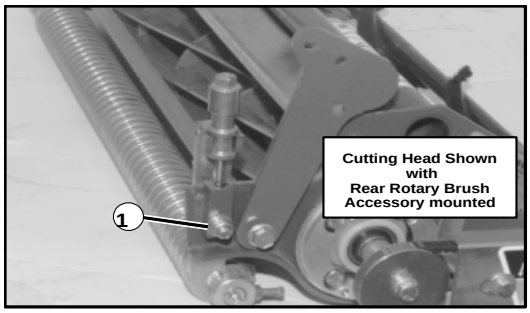


Figure 17
1. Loosen Locking Nut

3. Hold the gauge block across the bottom of both the front and rear rollers near the roller adjustment bracket and adjust the front roller until the cutting edge of the bedknife comes up to touch the bottom of the gauge screw head (See Fig. 18).

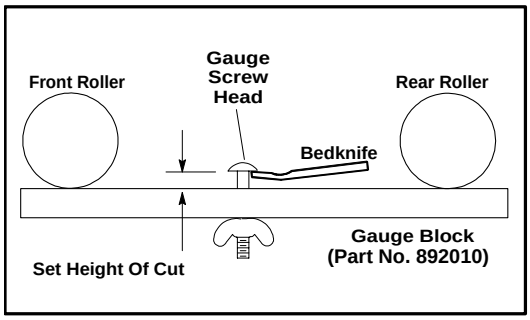


Figure 18
Height of Cut Adjustment

4. Tighten the locking nut and repeat the procedure at the other end. After adjustment has been made at both ends, go back and recheck both ends.
5. Make sure all three cutting heads are set without changing the height of the gauge screw.

SEAT ADJUSTMENT LEVER

Pull out on the adjustment lever located under the left side of the seat. Slide the seat to the desired position and release the lever.

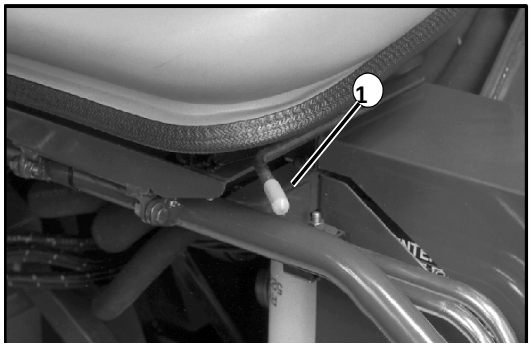


Figure 19
1. Seat Adjustment Lever

CONTROL ARM ADJUSTMENT

Support the control arm to avoid a sudden drop while adjusting its height. Loosen the **Locking Lever** to allow the steering wheel and control arm to be adjusted up or down. Tighten the locking lever when steering wheel is at the desired position.

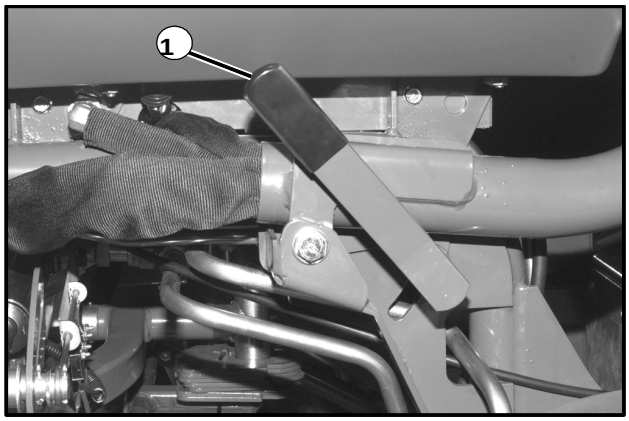


Figure 21
1. Control Arm Height Locking Lever

WARNING

- *DO NOT* attempt to adjust the control arm position while the unit is moving. Operator may loose control, causing possible injury to themselves or bystanders.

HYDRAULIC PUMP BYPASS VALVE

The **Bypass Valve** allows the unit to be pushed or towed. Turn the handle on the bottom of the pump counterclockwise (as viewed from the bottom of the pump) to open the valve. After moving the unit, close the valve by turning the handle clockwise.

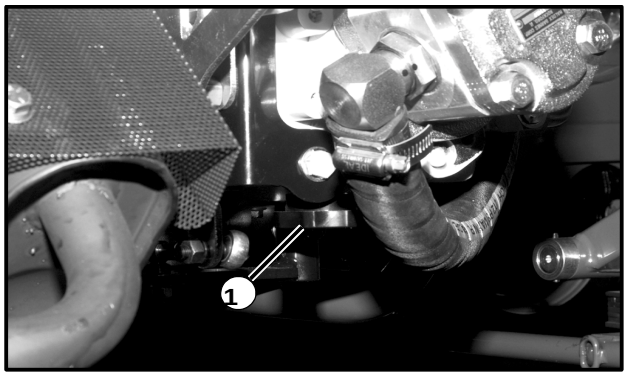
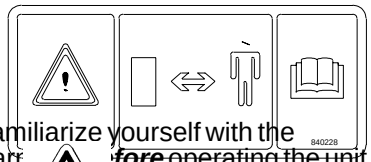


Figure 22
1. Bypass Valve Handle

NOTICE

- The bypass valve must be tightly closed for normal operation or a significant loss of speed will occur and



Read and familiarize yourself with the following warn ***fore*** operating the unit.

WARNING

- This is heavy equipment. Improper use, or operating the unit in areas that may cause it to overturn, could cause serious injury or death of you the operator or bystanders.
- *READ* and *understand* the operator's manual before attempting to operate this unit.
- Allow *ONLY* trained and authorized persons to operate this unit. *NEVER* allow children to operate this unit. Local regulations may restrict the age of the operator.
- Never operate the unit while people, especially children, or pets are nearby.
- Keep in mind that the operator or user is responsible for accidents or hazards occurring to other people or property.
- *BEFORE* using the unit, always inspect it for problems. If something is wrong, *DO NOT USE IT*. Fix the problem before using the unit to prevent possible injury.
- *WHILE* using the unit, if something is found to be wrong, *STOP* using it. Fix the problem before the unit is used again.
- Run the engine *ONLY* where there is enough fresh air to prevent the buildup of carbon monoxide fumes. Carbon monoxide is colorless, odorless and deadly. *NEVER* run the unit in an enclosed space where exhaust fumes will collect.
- *NEVER* use the unit in or near an area where there may be explosive dust or fumes. The electrical and exhaust systems of this unit will make sparks that can ignite explosive materials.
- *ALWAYS* use good judgement when operating on or near hills or slopes. *NEVER* start or stop suddenly, you may cause unstable operating conditions. *NEVER* change directions abruptly or make sharp turns on slopes. *ALWAYS* drive straight up and down the face of slopes, *NEVER* across the face.
- When refueling, *ALWAYS* stop the engine and do not allow sparks or open flames anywhere near the unit. *DO NOT* overfill the fuel tank. Fuel is extremely flammable and highly explosive under certain conditions. Clean up any spilled fuel and allow the vapors to dissipate before operating the unit. Store fuel in containers specifically

SECTION 3
ENGINE

STARTING THE ENGINE

When starting a diesel engine for the first time, after prolonged storage or if the fuel tank is allowed to run dry, the fuel system must be bled before attempting to start the engine. Refer to Bleeding The Fuel System in the maintenance and parts manual.

After bleeding the system *(if required):*

1. Operator must be properly seated in the operator's seat.
2. Make sure foot is off direction/speed control pedal. The reel enable switch must be in the off position before the engine will start.
3. Push hand throttle lever forward to a ***"MIDDLE"*** position.
4. Insert key in ignition switch and turn to ***ON*** position.
5. Push and hold the pre–heat switch forward. The red indicator light will come on. When the light goes out, release the pre–heat switch and start the engine (If the engine has been running and is already warm, there should be no need to pre heat the glow plugs).
6. After the engine starts, allow it to warm up for at least one minute.

NOTICE

- The starter motor should never be run for more than 10 seconds. If the engine does not start after operating the starter for 10 seconds, stop the starter. Wait for 30 seconds and repeat the start sequence.
- Do not use ether or starter fluid; severe engine damage may occur.

7. After the engine starts, check the following:
   ·Make sure the oil pressure light goes off
   ·The exhaust should be colorless or slightly dark when engine is under load

NOTICE

- If the oil light or water temperature light and buzzer come on during operation, stop the engine immediately. To avoid serious engine damage, find and fix the problem before restarting.

ENGINE BREAK-IN

All new engines require a break-in period. The service life of your engine is dependent upon how your engine is operated during the first 50 hours of operation.

1. ***ALWAYS*** idle and warm up your engine for at least one minute. In cold weather, allow the engine to warm up completely before operating the unit.
2. ***NEVER*** overload the engine.
3. Change engine oil after the first 50 hours:
   With the engine stopped and warm, drain the crankcase and remove oil filter. Install a new oil filter and refill the crankcase with proper oil.

WARNING

- This oil change must be performed as specified and only by properly trained service personnel.

4. Refer to the Maintenance Guide for future service intervals.

ENGINE ACCESS

The rear section of the unit can be raised for better access to the engine. Loosen the two handknobs above the rear fork. Raise the fuel tank frame. Support it by pivoting the rod beneath the fuel tank down and securing it in the cup next to the fork pivot (See Fig. 23).

WARNING

- *DO NOT* remove the fuel tank cap while the tank is in the raised position.

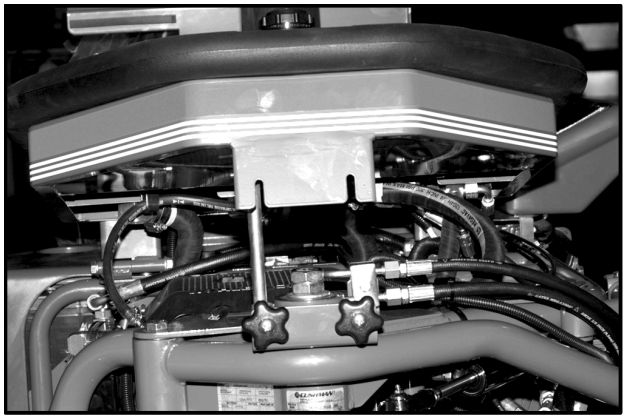


Figure 23
Rear Section of Unit Raised

DAILY SERVICE GUIDE

ENGINE OIL LEVEL

Damage to engines due to improper maintenance or use of incorrect oil quality and/or viscosity is not covered by the engine warranty (refer to the engine operator's manual for crankcase capacity and recommended oil grade and weight). Unit must be on a level surface to obtain an accurate oil level reading.The oil level must be kept between the two marks on the dipstick.

NOTICE

- ***DO NOT*** overfill. Engine overheating and damage may result.

Figure 26
1. Dipstick

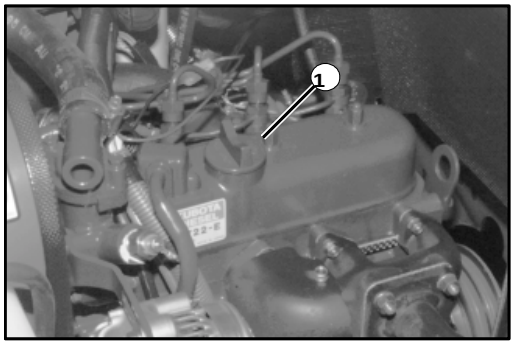


Figure 27
1. Oil Filler Port

IMPORTANT!

WE RECOMMEND THAT THE FILTER ELEMENT BE REPLACED BEFORE ENGINE PERFORMANCE IS AFFECTED. THIS MAY OCCUR AT 250 HOURS OF SERVICE UNDER VERY DUSTY CONDITIONS OR AT 500 HOURS UNDER NORMAL OPERATING CONDITIONS. WE DO NOT RECOMMEND CLEANING THE FILTER ELEMENT BECAUSE OF THE POSSIBILITY OF DAMAGING IT.

CHECKING THE ELEMENT

To check for damage, pin holes, etc. shine a light source into the end of the element. If light ***CANNOT*** be seen through the paper, a new element should be installed. Likewise, if pinholes of bright light appear in the paper, the element should be replaced.

INSTALLING ELEMENT

1. Clean the dust from inside the filter housing with a damp cloth. Make sure that dust does not enter the engine air intake.
2. Check the soft gasket material at both ends of the element to be sure it is not damaged.
3. Insert the open end of the element into the housing and press it onto the air intake pipe at the back of the housing. Make sure the filter element fits over the pipe snugly and is pushed all the way on to prevent any dust from getting past the filter.
4. Install the air cleaner cover over the element with the dust collector pointing ***DOWN*** (dust collector empties automatically when properly installed). Secure the cover with the two wire bails (See Fig. 29).

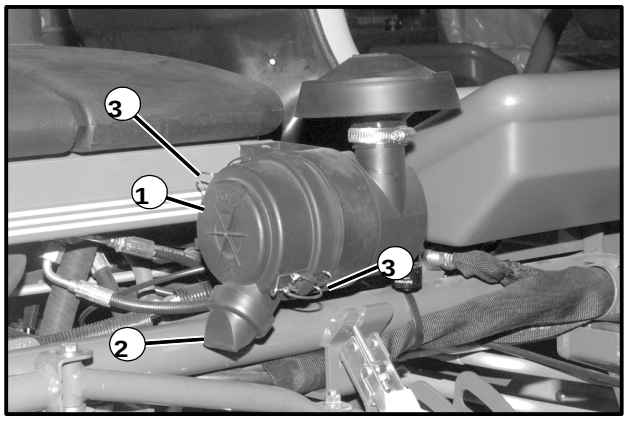


Figure 29
1. Cover
2. Dust Collector
3. Wire Bails

BLEEDING THE FUEL SYSTEM

WARNING

- This procedure must be performed as specified and only by properly trained service personnel.

The fuel system must be bled when:

- Starting the engine for the first time
- The fuel tank becomes completely empty
- The engine has not been used for an extended period of time
- The fuel filter and/or fuel lines have been loosened, removed or replaced.

Primary fuel filter PN 825619
Secondary fuel filter element (See Fig. 25) PN 840161

1. Fill the fuel tank.
2. Open the air vent on top of the fuel filter (See Fig. 25).
3. Without preheating the glow plugs, turn the ignition switch to START to operate the fuel pump. Allow the starter to run the pump until a steady stream of fuel is coming out of the fuel filter air vent. Stop the starter and close the air vent.

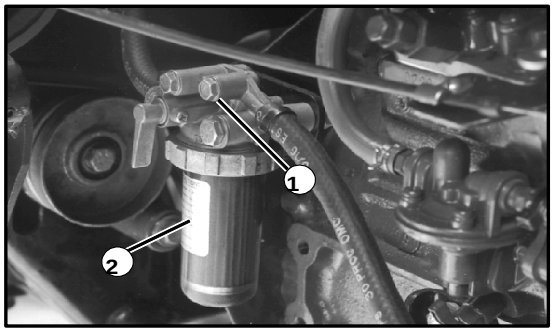


Figure 25
1. Fuel Filter Air Vent
2. Secondary fuel filter

4. Open the air vent on top of the injection pump, open air vent only when engine is NOT running (See Fig. 26).

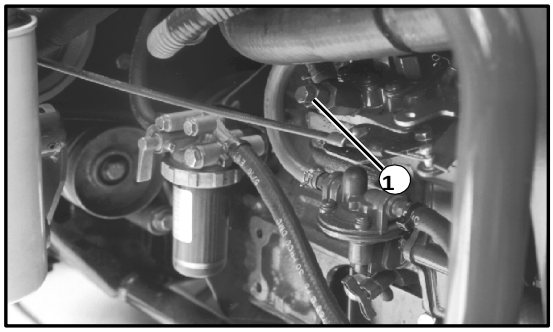


Figure 26
1. Injection Pump Air Vent

5. Without preheating the glow plugs, turn the ignition switch to START to operate the fuel pump. Allow the starter to run the pump until a steady stream of fuel is coming out of the injection pump air vent. Stop the starter and close the air vent.

WARNING

- Catch fuel and dispose of properly.
- To avoid a fire hazard, clean up any spilled fuel.

SECTION 4
DRIVE TRAIN

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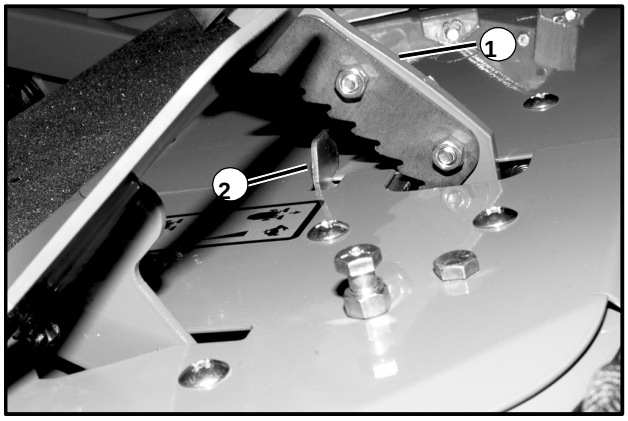
SECTION 5
BRAKE SYSTEM

PARKING BRAKE PEDAL

The **Parking Brake** can be engaged by depressing the brake pedal until the unit is at a complete stop. Once the unit is stoped, push the parking brake latch foward to hold the brake pedal. Disengage the parking brake by depressing and releasing the brake pedal.

It is important to note on the ZX series machines and machines that have been updated using kit LMAB 973, the parking brake must be depressed to unable the machine to start.



1. Brake Pedal
2. Park Brake Latch

SECTION 6
STEERING

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SECTION 7
WHEELS AND TYRES

TYRE PRESSURE


CAUTION

- Caution must be used when inflating a low tyre to recommended pressure. Check pressure with a low pressure tire gauge before connecting an air hose to a partly inflated tire.


CAUTION

- Due to the low air volume requirements of a small tyre, over inflation may be reached in a matter of a few seconds, which could cause the tire to explode.

COLD INFLATION PRESSURE
All Tires 9 PSI (60.3 kPa)

NOTICE

- Improper inflation will reduce tire life considerably

SECTION 8
HYDRAULICS FOR WB SERIES

Tools required: Standard automotive hand tools, including torque wrench, seal drivers, circlip pliers and bearing driver.

Tachometer (Photo/Mechanical)
Obtain from local supplier or,
Graham and White Instruments
135 Hatfield Road
St. Albans
Herts.
AL1 4LZ
United Kingdom
Tel: 01727 841692

Part number	Description
A810957	**Hydraulic Flow meter** equipped with loading valve.
A808947	**Fittings kit** (7/8" JIC to assorted ORFS sizes)
A810938	**Pressure Gauge test kit.** 1 x 0-6000psi gauge, 1 x 0-600psi gauge, 2 x rubber covers for gauges and 1 x micro-bore connector hose.
A810954	**0-600psi pressure gauge**
A810955	**0-6000psi pressure gauge**
A810939	**Micro-bore connector hose** for pressure gauges
2695493	**Flushing Filter.** Flow capacity 230 ltrs/min, pressure capacity 6085psi (414 Bar), filtration 10 micron and condition indicator gauge.
2695483	**Replacement element** for flushing filter
A810953	**Belt tension tester**

Cleaning Materials: Stoddard or equivalent solvent
Detergent and water
Loctite " Locquic" Primer " T"

Lubricants: See section 11

Other service items: Seal and repair kits (available from Textron distributors)
Liquid gasket
Loctite 242 Blue

SECTION 8B. STEERING AND LIFT CIRCUIT

SPECIFICATIONS

Pump:	Charge pump of the Sundstrand Series 15 Transmission pump. 5.4 cc/rev 18.3 litres/ min at 3400rpm engine speed.
Steering valve:	Eaton five port valve.
Steering Relief Valve:	Implement valve fitted to the Sundstrand Series 15 Transmission pump. 69 bar (1000psi)
Speed restrictors:	1.27mm (0.050") in both lines to centre unit ram, one being located in the Sequence valve.

CIRCUIT DESCRIPTION

NOTE: *All hydraulic pump outputs and pressures are given with the engine at maximum rpm and with the oil at working temperature.*

Oil is drawn into the charge pump from the hydraulic reservoir (**Shell Tellus 46** grade or equivalent) via the 25 micron suction filter. The oil is displaced by the (5.4cc) gerotor pump at a rate of **18.3 litres/min**, at an engine speed of **3400 rpm.**

From the pump the oil flows to the "**P"** port of the Eaton steering valve. When turning the steering wheel oil is fed from the valve to the double acting ram at the rear of the machine. Oil displaced from the other side of the ram returns to the hydraulic reservoir via port **"T"** of the steering valve. The maximum pressure available for steering is **1000psi.** An implement valve located in the Transmission pump controls this pressure.

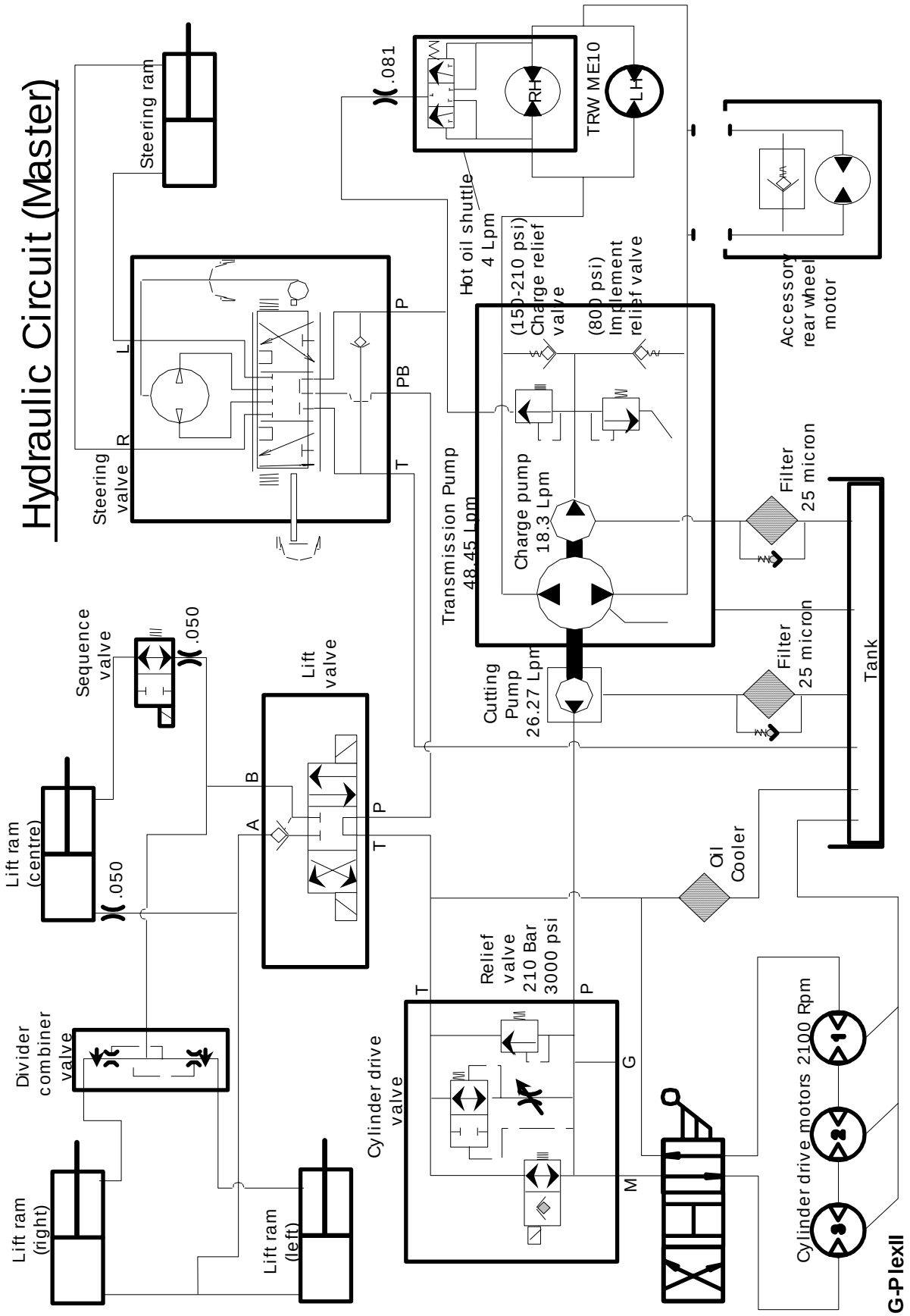
If the steering wheel is not being turned then the oil flows out of steering valve from the **"PB"** port to the **"P"** port of the lift valve. If the lift levers are not being used oil flows past the spools out of the **"T"** port of the lift valve to the oil cooler and then on to the hydraulic reservoir.

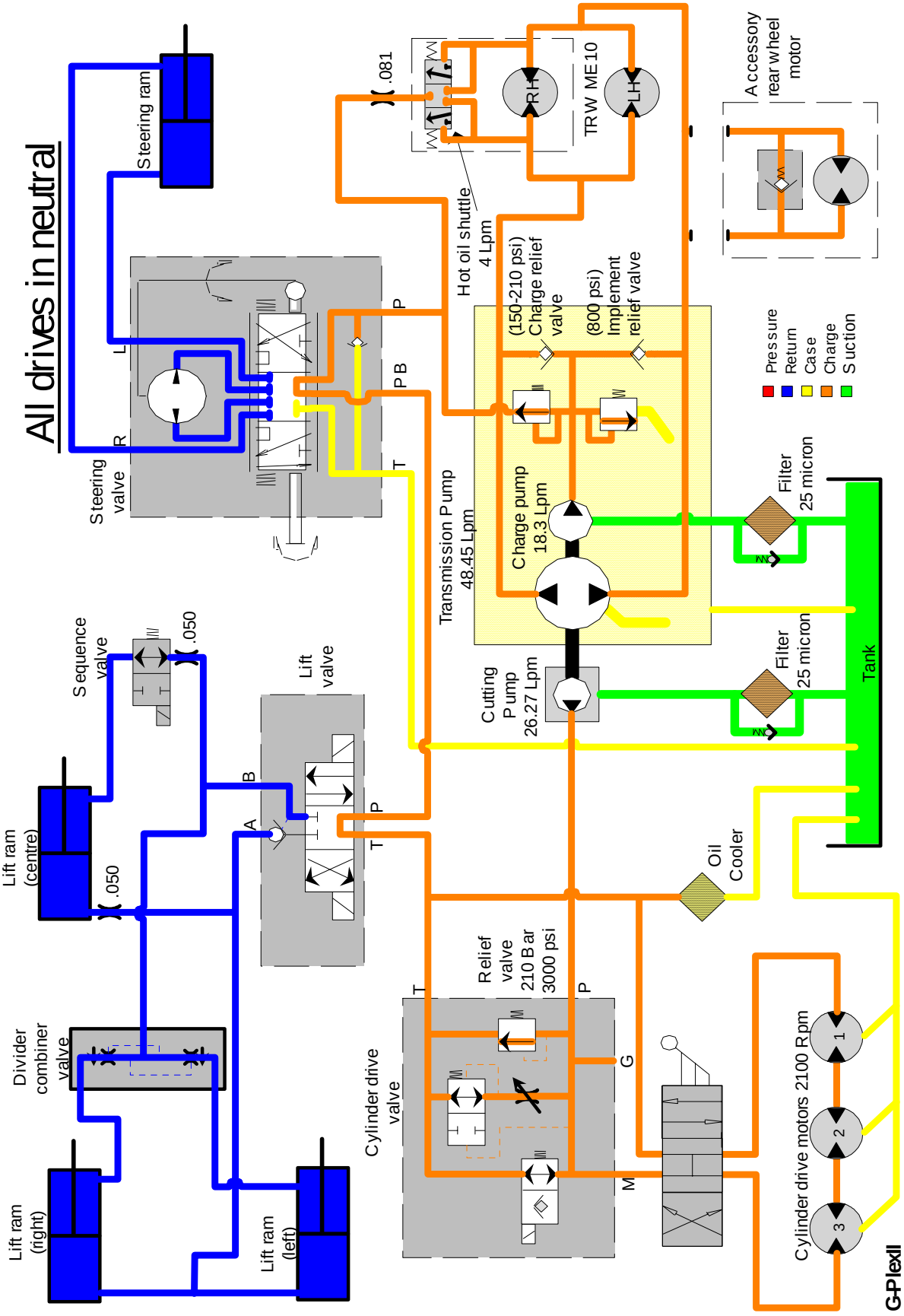
When raising units the rear of the foot pedal is pressed which energises the lift valve solenoid thus moving the spools to feed oil out of the **"A"** port opening the check valve as it does so. The oil then goes to the front rams, which extend and raise the units. The flow combiner/divider ensures that the front rams lift at equal speed by controlling the rate that oil is displaced from the rams. The oil also goes to the centre ram but as the sequence valve is closed it prevents oil within the ram from being displaced so the unit cannot lift.
After a short delay the sequence valve opens allowing the centre unit to raise. The oil flow to the centre unit ram and from the sequence valve is restricted to slow the raise speed. Oil displaced by the rams goes though valve port "B" before returning to the oil cooler and reservoir.
If the Operator continues to press the foot pedal the pressure would build until the **1000psi** implement relief blows. When the pedal is released the oil is trapped between the rams and the check valve preventing the units from dropping.

Pressing the front of the foot pedal energises the lower solenoid on the lift valve moving the spool and allowing oil to flow out of port **"B".** At the same time the check valve in port "A" is lifted off its seat via a pilot line. Oil flows to the front rams via the flow combiner/divider ensuring the units lower at the same rate. Oil also flows to the sequence valve but this is closed initially.
After a short delay the sequence valve opens and the centre unit lowers, it's speed controlled by the restriction created by the orifice in the line to the valve and another fitted in the line from the ram. Oil displaced from the rams has to pass through the open check valve in port "A" before returning to the oil cooler and reservoir.

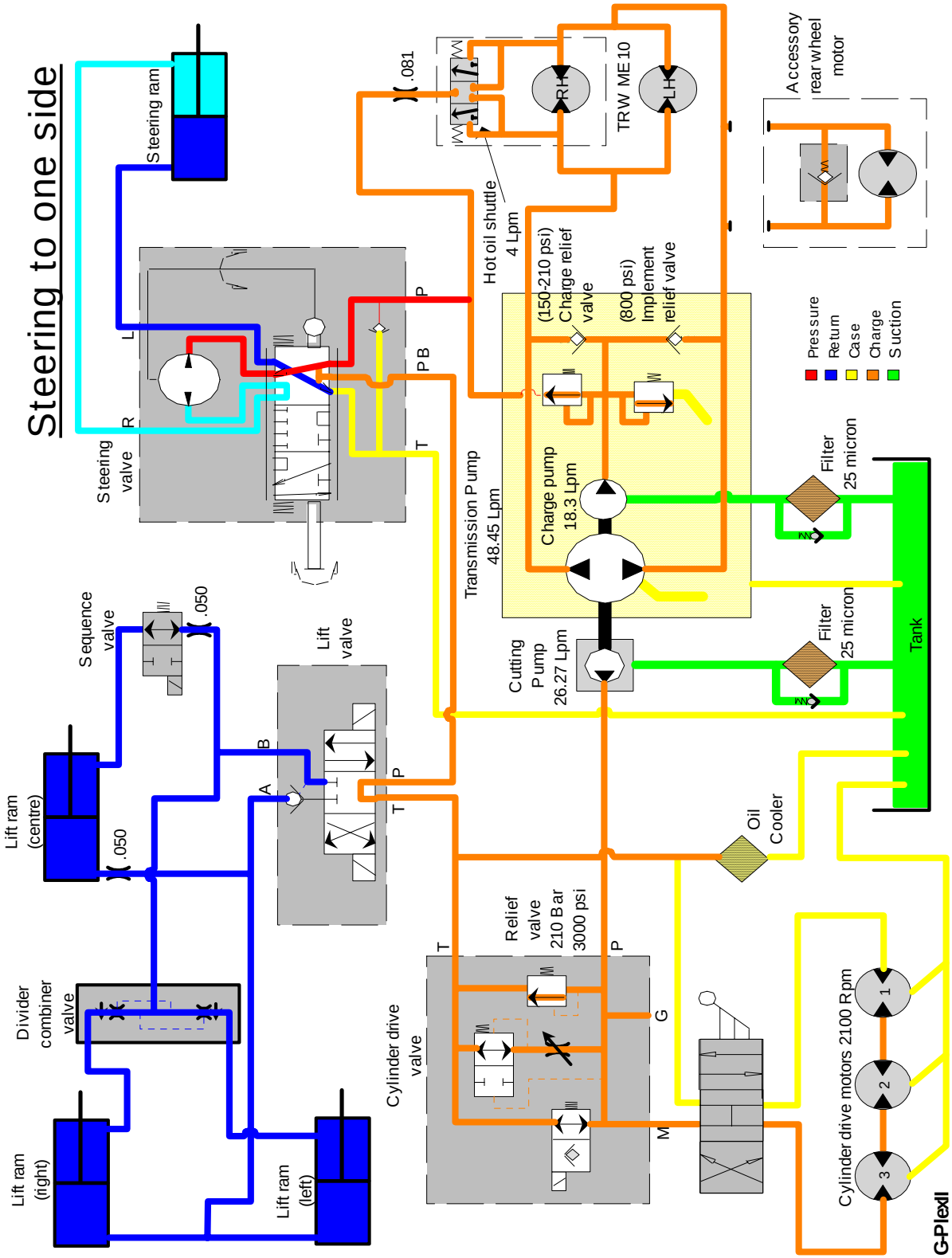
Flotation of the units whilst cutting is not restricted in any way by the rams as they locate in slots in the unit arms allowing full articulation.

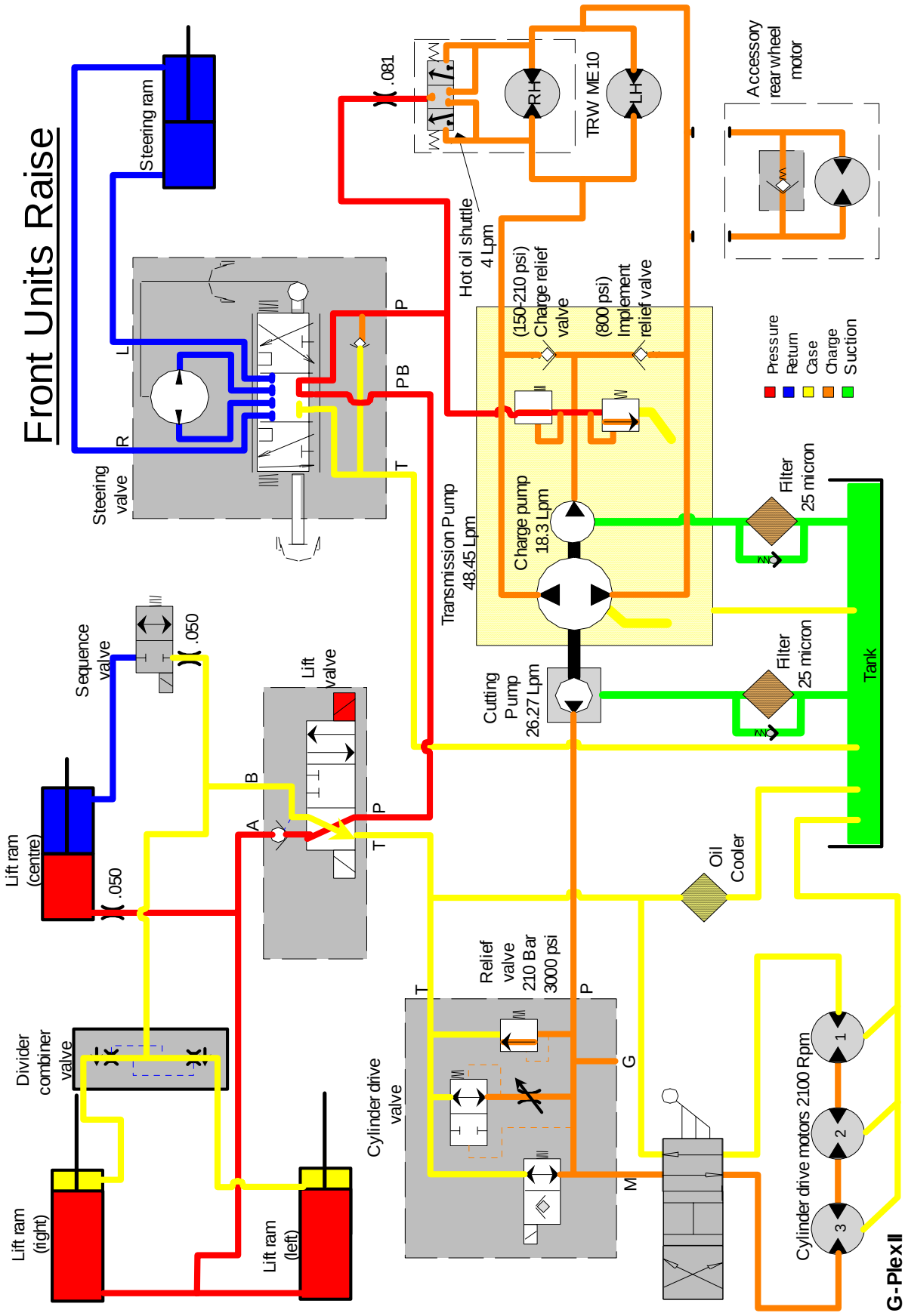
IMPORTANT NOTE: When turning the steering wheel on a continuous full lock the implement valve will blow and this will prevent the lift circuit from working. This is a characteristic of the circuit that should not present a problem when the machine is used as intended.

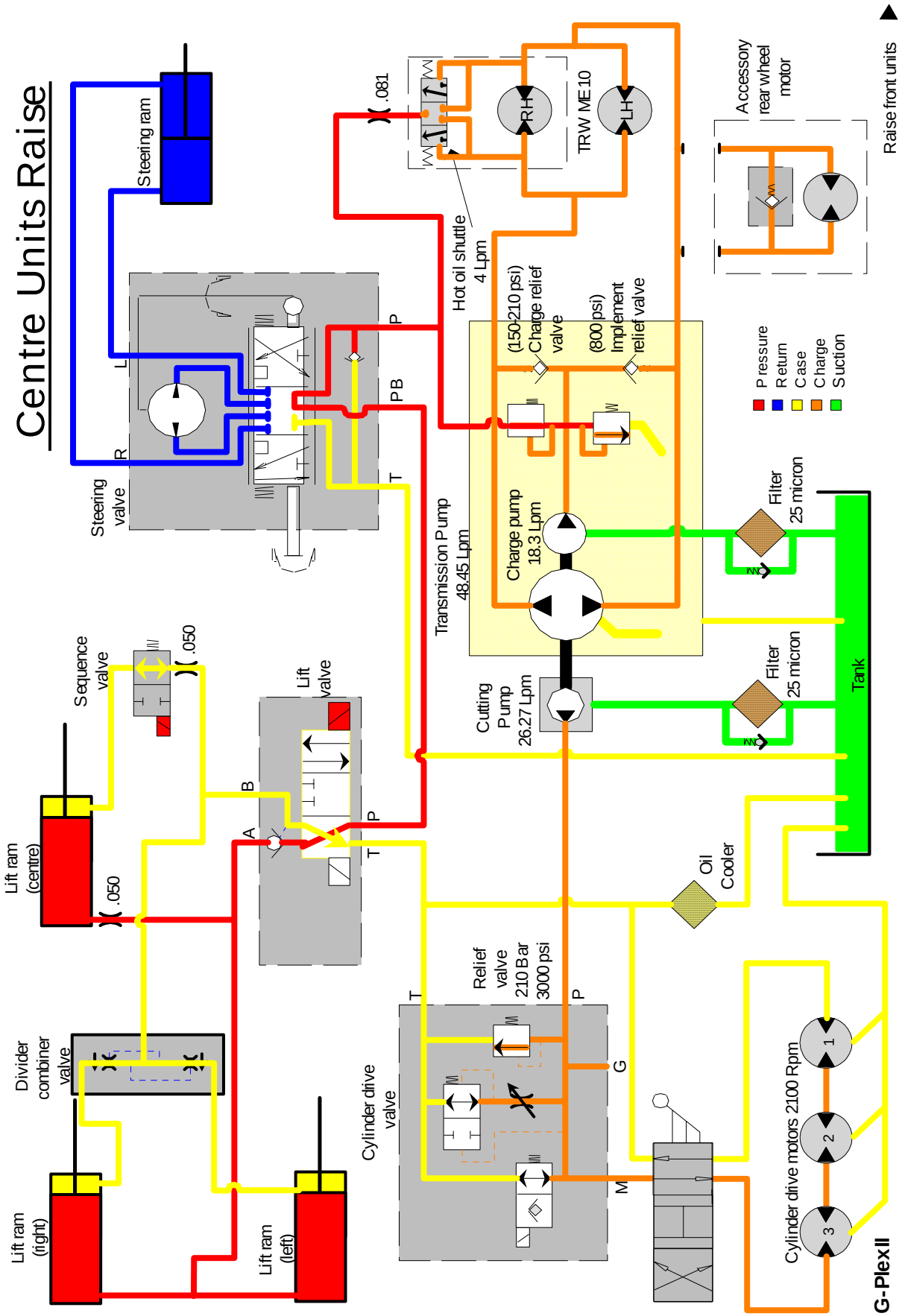

Hydraulic Circuit (Master)
Steering ram
Steering valve
L
R
P
PB
T
.081
RH
LH
TRW ME10
Hot oil shuttle
4 Lpm
(150-210 psi)
Charge relief
valve
(800 psi)
Implement
relief valve
Accessory
rear wheel
motor
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting
Pump
26.27 Lpm
Sequence
valve
.050
Lift
valve
B
A
P
T
Lift ram
(centre)
.050
Oil
Cooler
Relief
valve
210 Bar
3000 psi
T
P
Divider
combiner
valve
Cylinder drive
valve
G
M
Lift ram
(right)
Lift ram
(left)
Cylinder drive motors 2100 Rpm
G-P lexII

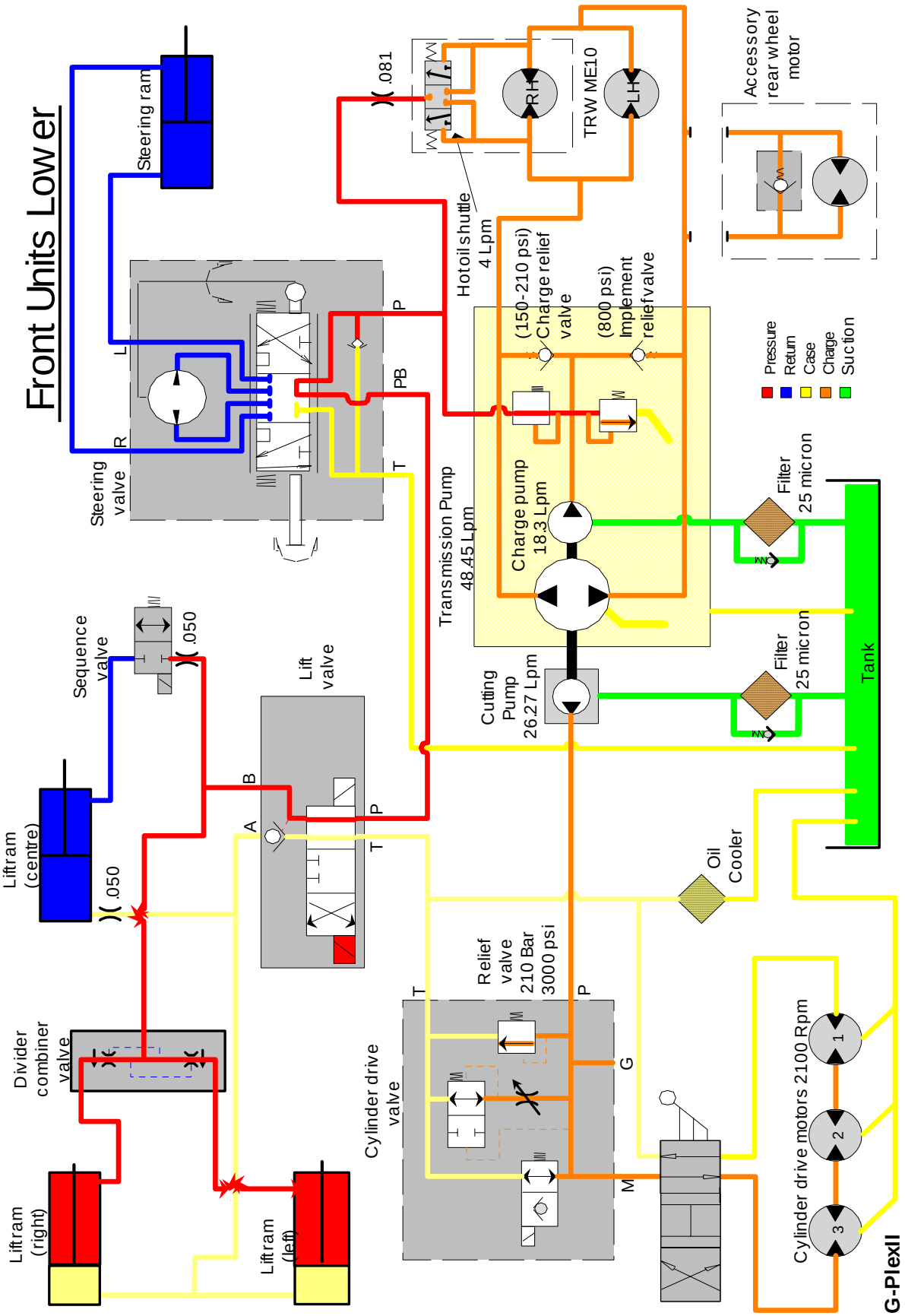

All drives in neutral
Steering ram
Steering valve
L
R
P
P B
T
.081
Hot oil shuttle
4 Lpm
TRW ME 10
RH
LH
Accessory rear wheel motor
(150-210 psi)
Charge relief valve
(800 psi)
Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Cutting
P ump
26.27 Lpm
Filter
25 micron
Tank
Sequence valve
.050
Lift valve
B
A
P
T
Lift ram
(centre)
.050
Oil
Cooler
Relief
valve
210 B ar
3000 psi
T
P
G
M
Cylinder drive
valve
Divider
combiner
valve
Lift ram
(right)
Lift ram
(left)
Cylinder drive motors 2100 Rpm
1
2
3
G-Plexll

8B

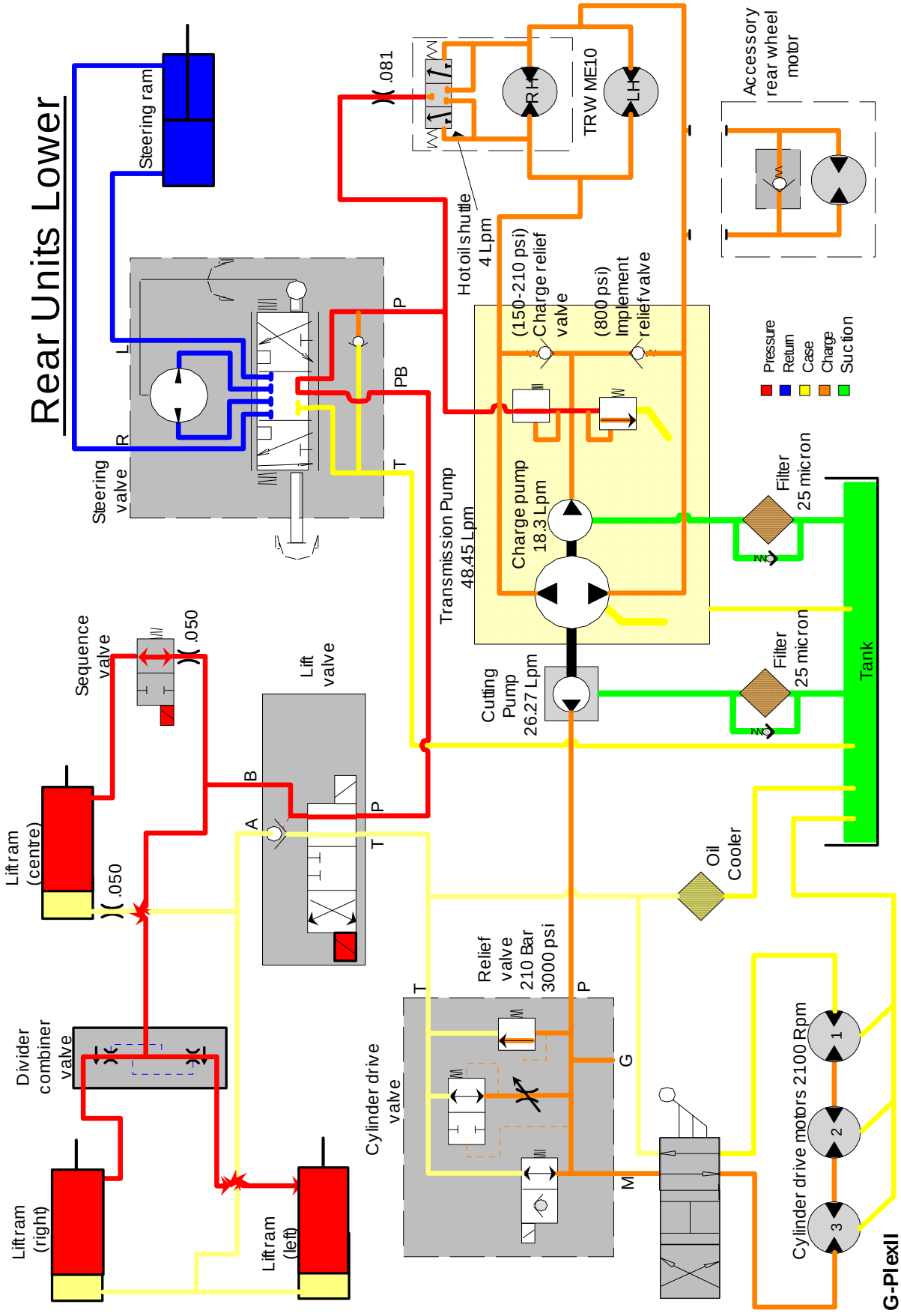

Steering to one side
Steering ram
Steering valve
L
R
P
B
T
.081
RH
LH
TRW ME 10
Hot oil shuttle
4 Lpm
(150-210 psi)
Charge relief
valve
(800 psi)
Implement
relief valve
Accessory
rear wheel
motor
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Cutting
Pump
26.27 Lpm
Filter
25 micron
Filter
25 micron
Tank
Oil
Cooler
Sequence
valve
.050
Lift
valve
A
B
P
T
Lift ram
(centre)
.050
Divider
combiner
valve
Lift ram
(right)
Lift ram
(left)
Cylinder drive
valve
T
Relief
valve
210 Bar
3000 psi
P
G
M
Cylinder drive motors 2100 Rpm
1
2
3
G-Plexll


Front Units Raise
Steering ram
Steering valve
L
R
P
PB
T
.081
RH
LH
TRW ME10
Accessory rear wheel motor
Hot oil shuttle 4 Lpm
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump 48.45 Lpm
Charge pump 18.3 Lpm
Filter 25 micron
Filter 25 micron
Tank
Cutting Pump 26.27 Lpm
Oil Cooler
Sequence valve
.050
Lift valve
B
A
P
T
Lift ram (centre)
.050
Divider combiner valve
Lift ram (right)
Lift ram (left)
Cylinder drive valve
T
Relief valve 210 Bar 3000 psi
P
G
M
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII


Centre Units Raise
Steering ram
Steering valve
L
R
P
PB
T
.081
Hot oil shuttle
4 Lpm
TRW ME10
RH
LH
Accessory rear wheel motor
Raise front units
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission P ump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Cutting
P ump
26.27 Lpm
Filter
25 micron
Tank
Sequence valve
.050
Lift valve
B
A
P
T
Lift ram (centre)
.050
Oil Cooler
Relief valve 210 Bar 3000 psi
T
P
G
M
Cylinder drive valve
Divider combiner valve
Lift ram (right)
Lift ram (left)
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII


Front Units Lower
Steering ram
Steering valve
L
R
P
PB
T
.081
TRW ME10
RH
LH
Hotoil shuttle
4 Lpm
(150-210 psi)
Charge relief
valve
(800 psi)
Implement
relief valve
Accessory
rear wheel
motor
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting
Pump
26.27 Lpm
Sequence
valve
.050
Lift
valve
B
A
P
T
Liftram
(centre)
.050
Oil
Cooler
Relief
valve
210 Bar
3000 psi
T
P
G
M
Cylinder drive
valve
Divider
combiner
valve
Liftram
(right)
Liftram
(left)
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII

8B


Rear Units Lower
Steering ram
Steering valve
L
R
P
PB
T
.081
Hot oil shuttle
4 Lpm
TRW ME10
RH
LH
Accessory rear wheel motor
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting Pump
26.27 Lpm
Sequence valve
.050
Lift valve
B
A
P
T
Liftram (centre)
.050
Oil Cooler
Relief valve
210 Bar
3000 psi
T
P
G
M
Cylinder drive valve
Divider combiner valve
Liftram (right)
Liftram (left)
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII

SECTION 8C. CUTTING CIRCUIT

SPECIFICATIONS

Pump:	Haldex Barnes Corporation W900 8cc/rev 27.2litres/min @ 3400rpm engine speed.
Cutter Relief valve:	207bar (3000psi)
Motors:	Haldex Barnes Corporation W600 12cc Bi-directional 2190rpm @ 3400rpm engine speed.

CIRCUIT DESCRIPTION

NOTE: *All hydraulic pump outputs and pressures are given with the engine at maximum rpm and with the oil at working temperature.*

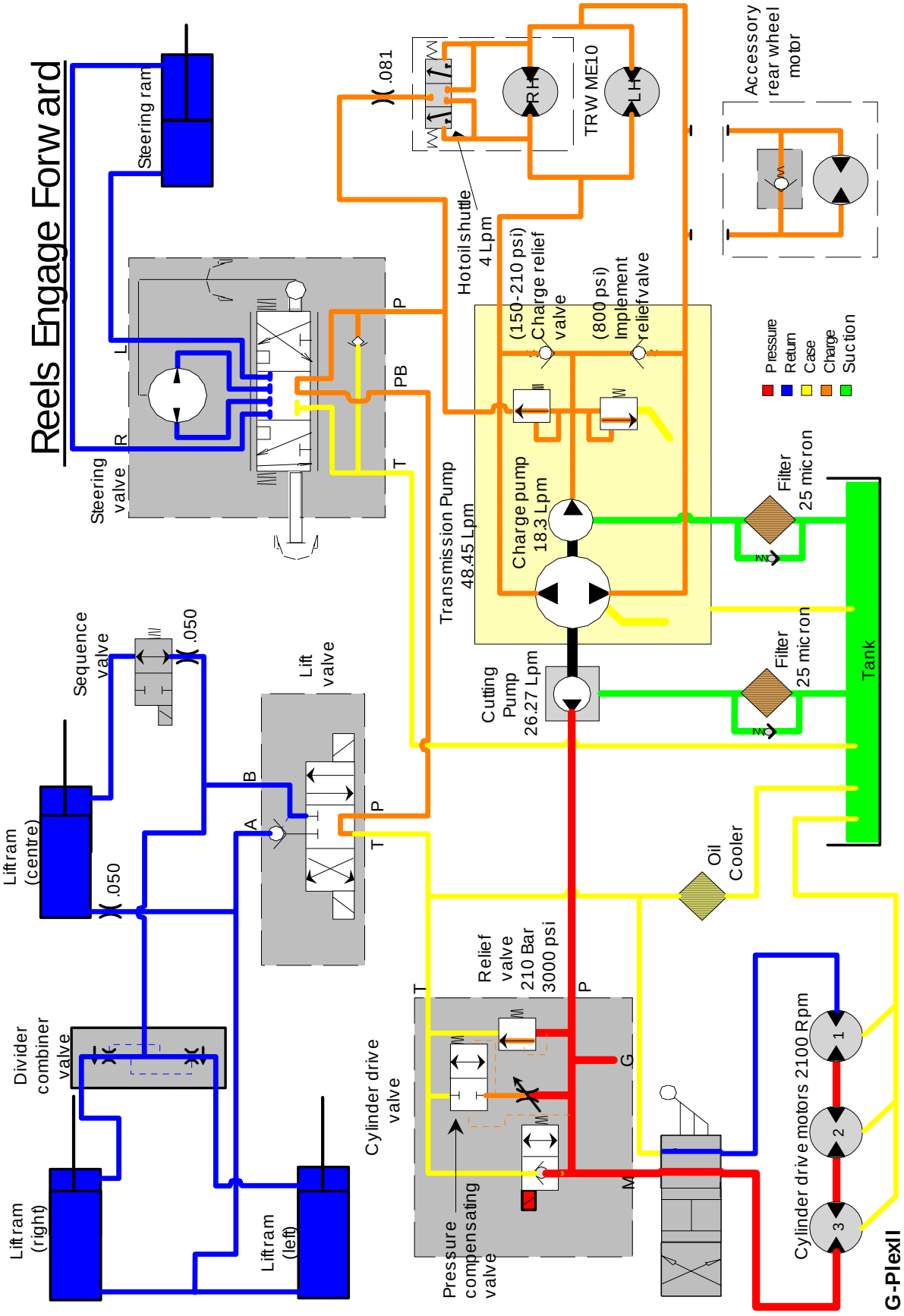
Oil is drawn into the cutting pump from the hydraulic reservoir (**Shell Tellus 46** grade or equivalent) via the 25 micron suction filter. This oil is displaced by the twin gear pump (8cc) at a rate of **27.2 ltrs/min**, at an engine speed of **3400rpm**.

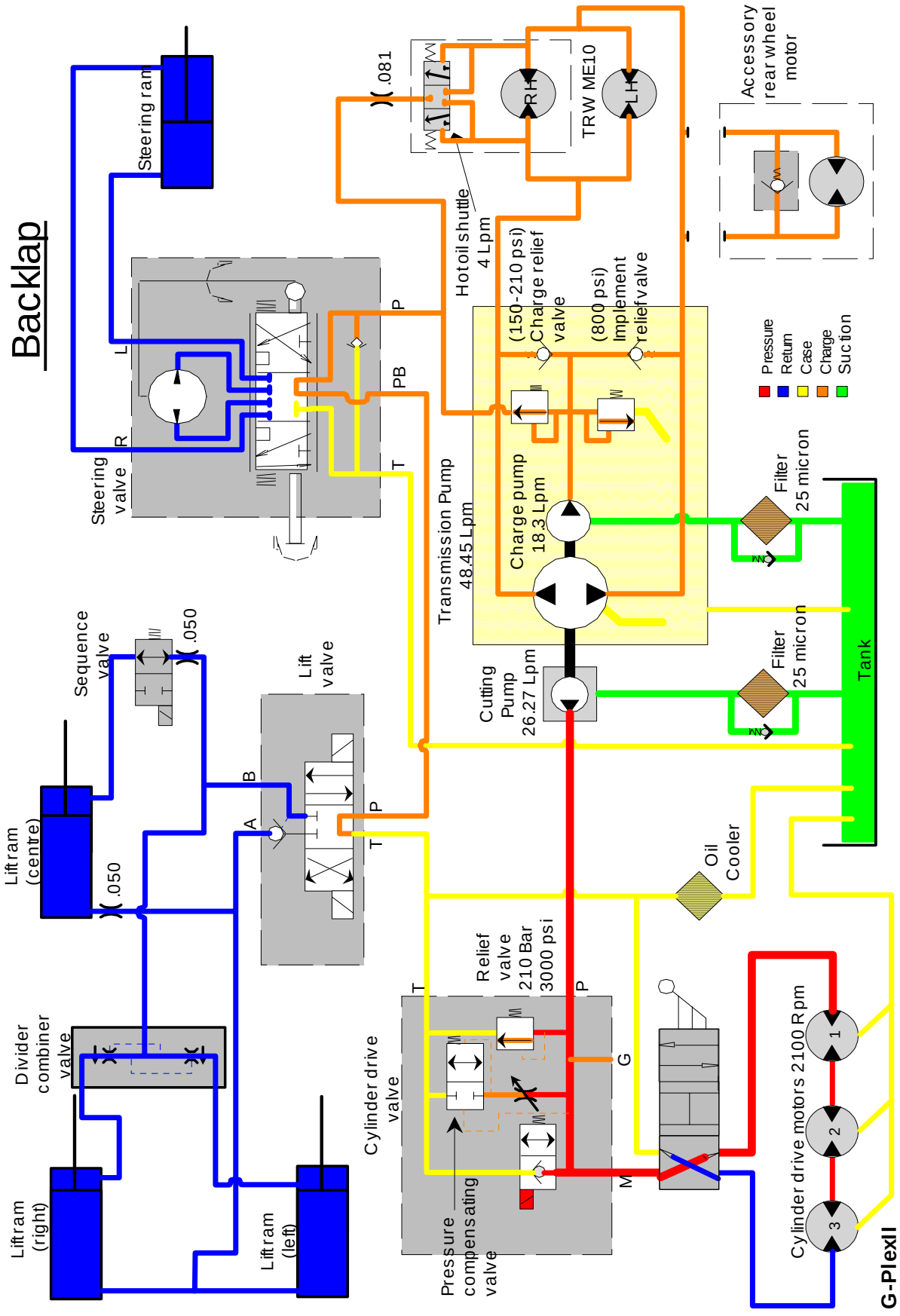
From the pump the oil flows to the **"P"** port of the Reel drive valve. If reel drive is not enabled the oil passes through the solenoid valve and returns to the hydraulic reservoir from the **"T"** port via the cooler.

If the Reel drive is enabled (and the units lowered) the solenoid valve closes and the oil then flows from **"M"** port to the Reel motors via the back-lap valve. If forward drive has been selected the oil goes to the front right hand unit, the front left hand unit and then to the centre unit before returning to the back-lap valve, the cooler and the reservoir.

Within the Reel drive valve is a variable speed control that comprises a needle valve and a pilot operated spool valve. Rotating the knurled head of the needle valve allows a proportion of the oil to return to the reservoir reducing reel speed. The pilot operated pressure compensating spool valve ensures that the selected speed is maintained regardless of changes in loading.

If one of the Reels becomes jammed by a shoe spike or tee peg then the pressure within the circuit will quickly increase until it reaches **207bar (3000psi)** at which point the relief valve will open allowing oil to return to the reservoir via the cooler. All reels will then stop rotating.
SAFETY NOTE: To avoid the possibility of serious injury, switch the reel enable switch to off, stop the engine, remove the key and set the parking brake before attempting to release the obstruction. Never rotate the reel by pushing with your hands or fingers as energy can be released suddenly resulting in serious injury. Instead use a suitable length of softwood to ease the obstruction free.


Reels Engage Forward
Steering ram
Steering valve
L
R
P
PB
T
.081
Hotoil shuttle
4 Lpm
TRW ME10
RH
LH
Accessory rear wheel motor
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting Pump
26.27 Lpm
Sequence valve
.050
.050
Lift valve
B
A
P
T
Liftram (centre)
Oil Cooler
Divider combiner valve
Relief valve
210 Bar
3000 psi
T
P
G
M
Cylinder drive valve
Liftram (right)
Liftram (left)
Pressure compensating valve
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII


Backlap
Steering ram
Steering valve
L
R
P
PB
T
.081
Hot oil shuttle
4 Lpm
RH
LH
TRW ME10
Accessory rear wheel motor
(150-210 psi)
Charge relief valve
(800 psi)
Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting
Pump
26.27 Lpm
Sequence valve
.050
Lift valve
B
A
P
T
Liftram (centre)
.050
Oil
Cooler
Relief valve
210 Bar
3000 psi
T
P
G
M
Divider combiner valve
Cylinder drive valve
Liftram (right)
Liftram (left)
Pressure compensating valve
Cylinder drive motors 2100 Rpm
1
2
3
G-Plexll

8C

SPECIFICATIONS

Pump:	Sundstrand 15 series, 15 cc/rev. maximum, **51 litres/min @ 3400rpm** engine speed.
Charge (boost) pump:	Integral part of transmission pump. 5.4cc/rev, **18.3litres/min @ 3400rpm** engine speed.
Charge relief valve:	**10.3 bar (150psi)**
Wheel motors:	Parker Ross ME10 169cc
Optional 3WD:	Parker Ross ME21 338cc

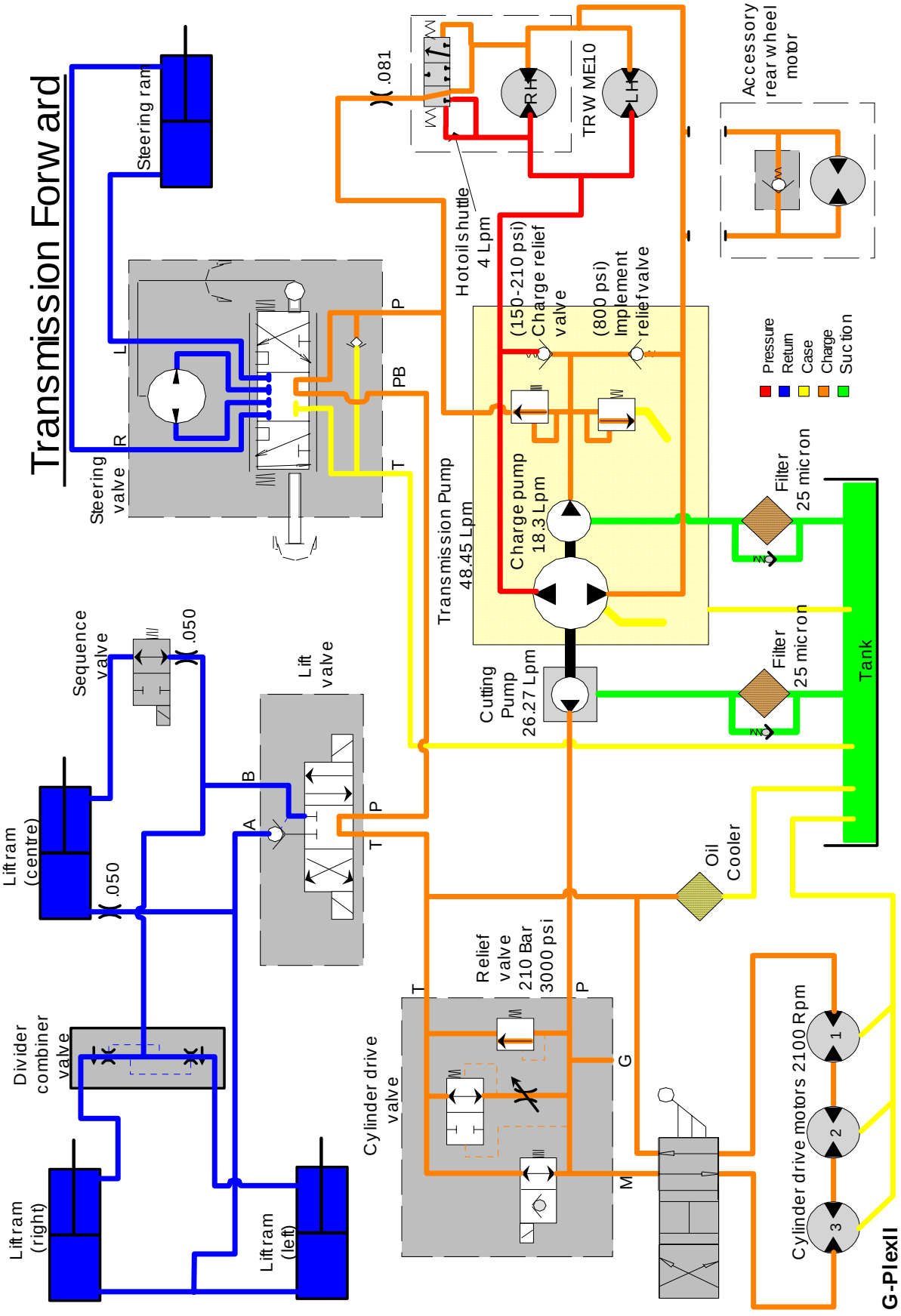
CIRCUIT DESCRIPTION

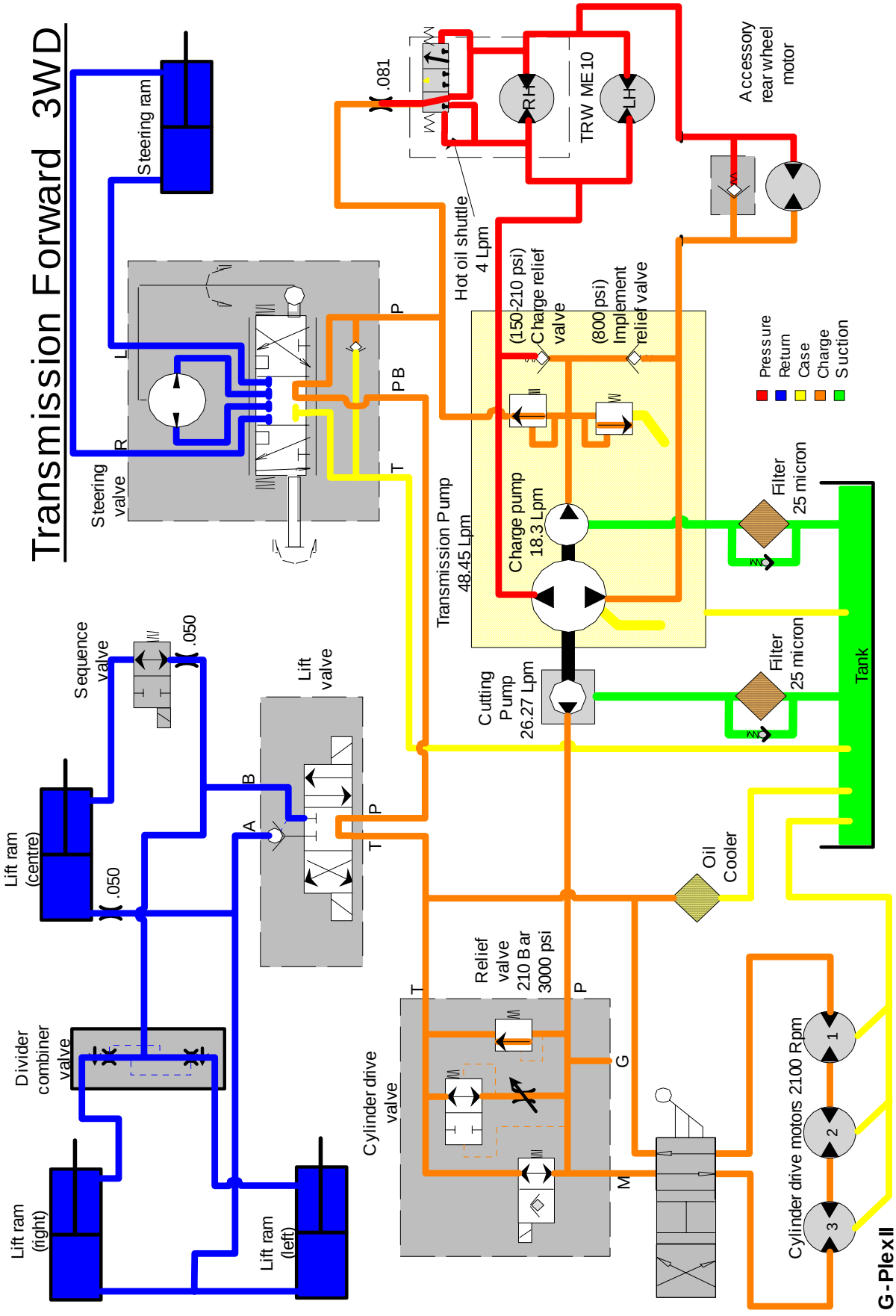
NOTE: *All hydraulic pump outputs and pressures are given with the engine at maximum rpm and with the oil at working temperature.*

The foot pedal mounted on the right hand side of the platform is linked to the Transmission pump by cable. A simple spring return system is provided to ensure the pump returns to a neutral position. Movement of the pedal results directly in a corresponding movement of the transmission pump's swash-plate. The transmission system is not protected by any form of shock or relief valve. This is considered unnecessary, as overloading the system will result in spinning the slick tyres.

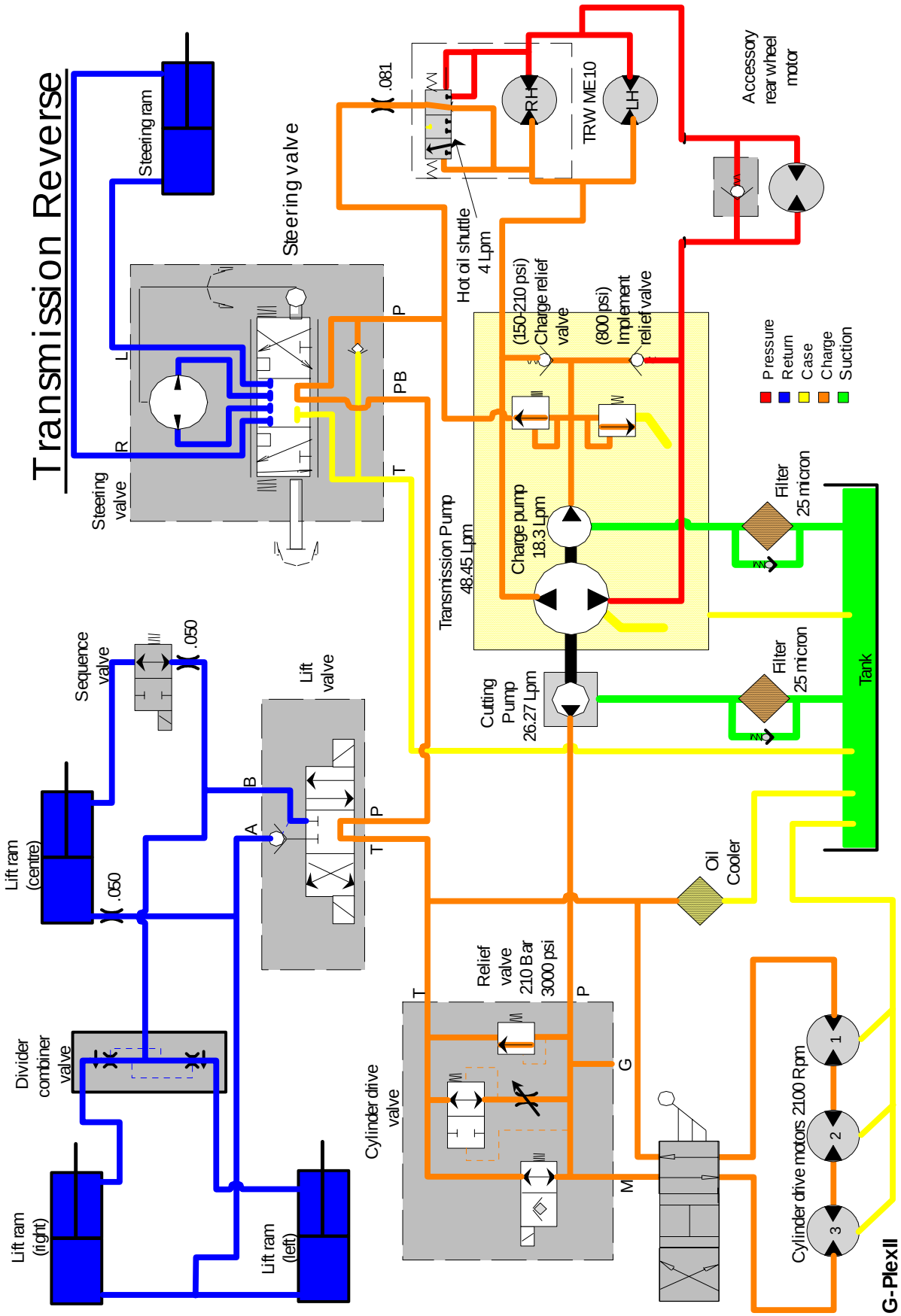
Oil from the pump goes to a tee, which supplies both front motors before returning to the pump. The front right hand motor has an oil shuttle that sets up an exchange of oil at a rate of **4 litres/minute** joining that going to the steering and lift circuit. This oil is replaced within the transmission pump by cooler, filtered oil by the charge pump. This works whether forward or reverse drive is selected.

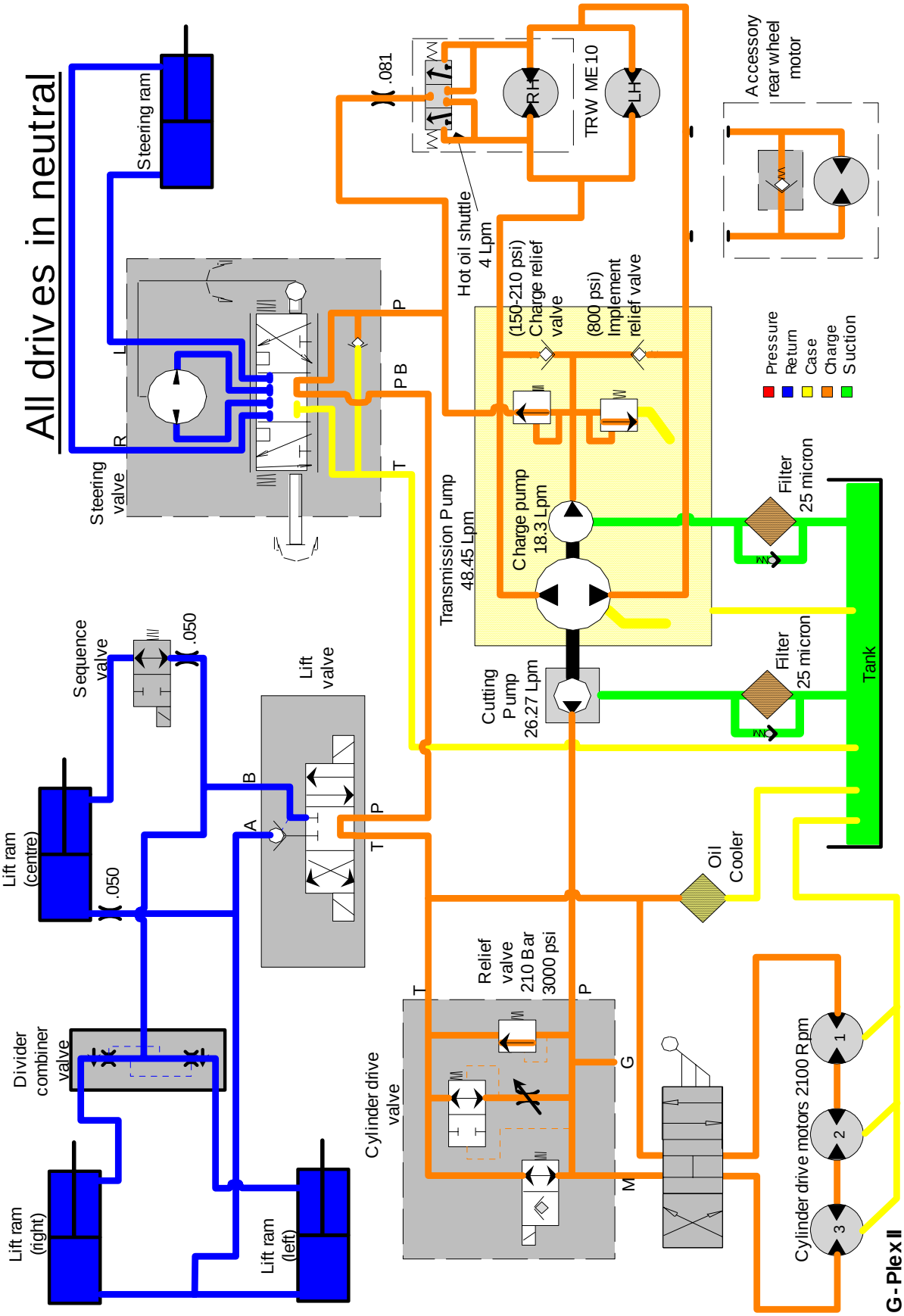
Third wheel drive is available as an optional accessory. A rear wheel motor of twice the capacity of the front motors is connected in what is the return line to the pump in forward drive. As the oil has already driven the front wheels in parallel this larger motor rotates at the same speed. A check valve ensures that the rear motor can freewheel during severe hydrostatic braking on steep descents or when reversing.


Transmission Forward
Steering ram
Steering valve
L
R
P
PB
T
.081
Hot oil shuttle
4 Lpm
TRW ME10
RH
LH
Accessory rear wheel motor
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Tank
Cutting Pump
26.27 Lpm
Filter
25 micron
Sequence valve
.050
Lift valve
B
A
P
T
Liftram (centre)
.050
Oil Cooler
Divider combiner valve
Relief valve
210 Bar
3000 psi
T
P
G
M
Cylinder drive valve
Liftram (right)
Liftram (left)
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII


Transmission Forward 3WD
Steering ram
Steering valve
L
R
P
PB
T
.081
TRW ME10
RH
LH
Accessory rear wheel motor
Hot oil shuttle 4 Lpm
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump 48.45 Lpm
Charge pump 18.3 Lpm
Filter 25 micron
Filter 25 micron
Tank
Cutting Pump 26.27 Lpm
Oil Cooler
Sequence valve
.050
Lift valve
B
A
P
T
Lift ram (centre)
.050
Divider combiner valve
Lift ram (right)
Lift ram (left)
Cylinder drive valve
Relief valve 210 Bar 3000 psi
T
P
G
M
Cylinder drive motors 2100 Rpm
1
2
3
G-PlexII

8D


Transmission Reverse
Steering ram
Steering valve
Steering valve
L
R
P
PB
T
.081
Hot oil shuttle
4 Lpm
RH
LH
TRW ME10
Accessory
rear wheel
motor
(150-210 psi)
Charge relief
valve
(800 psi)
Implement
relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting
Pump
26.27 Lpm
Sequence
valve
.050
Lift
valve
B
A
P
T
Lift ram
(centre)
.050
Oil
Cooler
Relief
valve
210 Bar
3000 psi
T
P
G
M
Cylinder drive
valve
Divider
combiner
valve
Lift ram
(right)
Lift ram
(left)
1
2
3
Cylinder drive motors 2100 Rpm
G-Plexll


All drives in neutral
Steering ram
Steering valve
L
R
P
B
T
.081
Hot oil shuttle
4 Lpm
TRW ME10
RH
LH
Accessory rear wheel motor
(150-210 psi)
Charge relief valve
(800 psi)
Implement relief valve
Pressure
Return
Case
Charge
Suction
Transmission Pump
48.45 Lpm
Charge pump
18.3 Lpm
Filter
25 micron
Filter
25 micron
Tank
Cutting
Pump
26.27 Lpm
Sequence valve
.050
Lift valve
B
A
P
T
Lift ram (centre)
.050
Oil Cooler
Divider combiner valve
Relief valve
210 Bar
3000 psi
T
P
G
M
Cylinder drive valve
Lift ram (right)
Lift ram (left)
Cylinder drive motors 2100 Rpm
1
2
3
G-Plex II

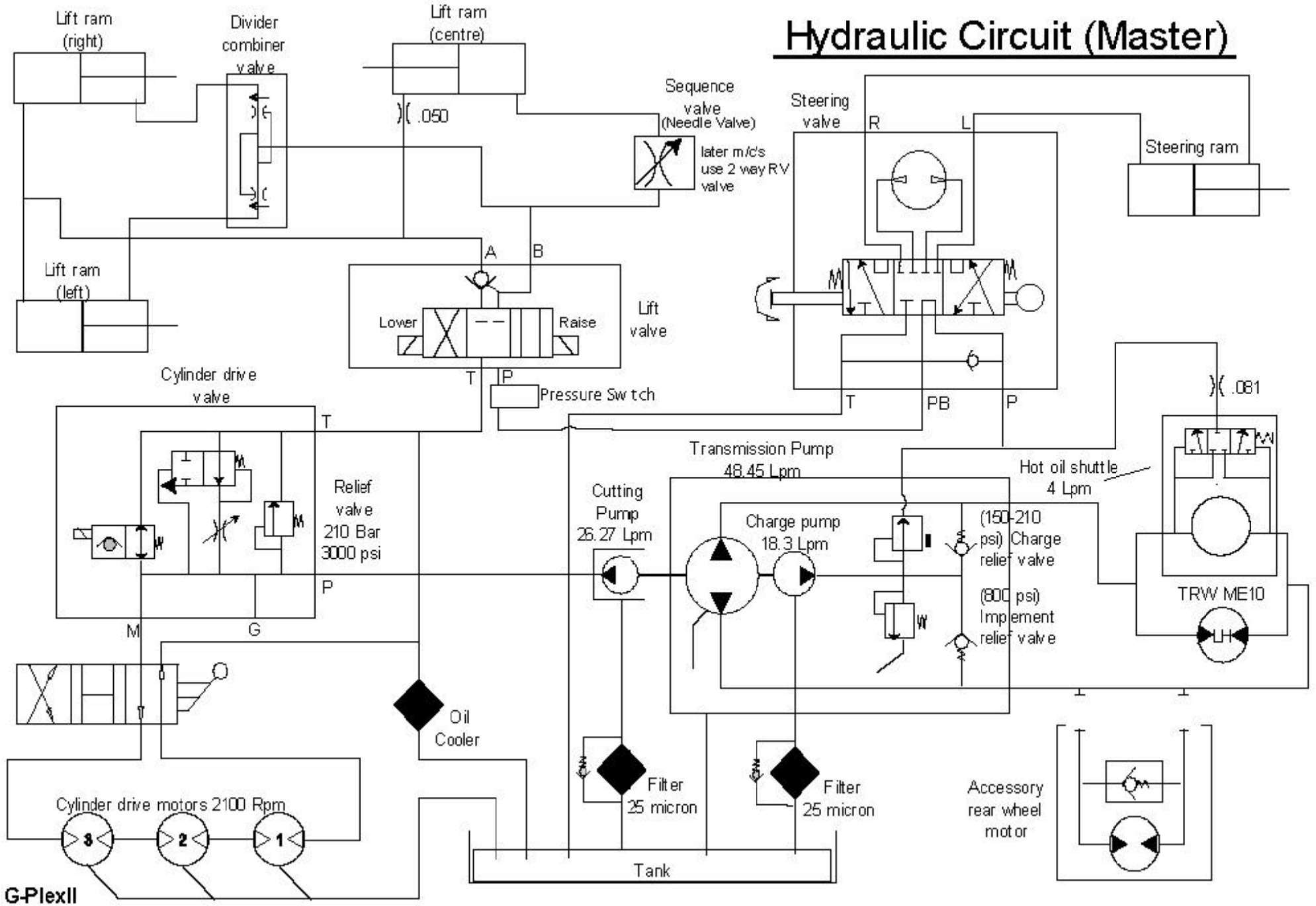
8D

SECTION 8
HYDRAULICS FOR ZV SERIES

Master Hydraulic Schematic Diagrams

ZV Series machines fitted with pressure switch and variable needle valve.

Hydraulic Circuit (Master)



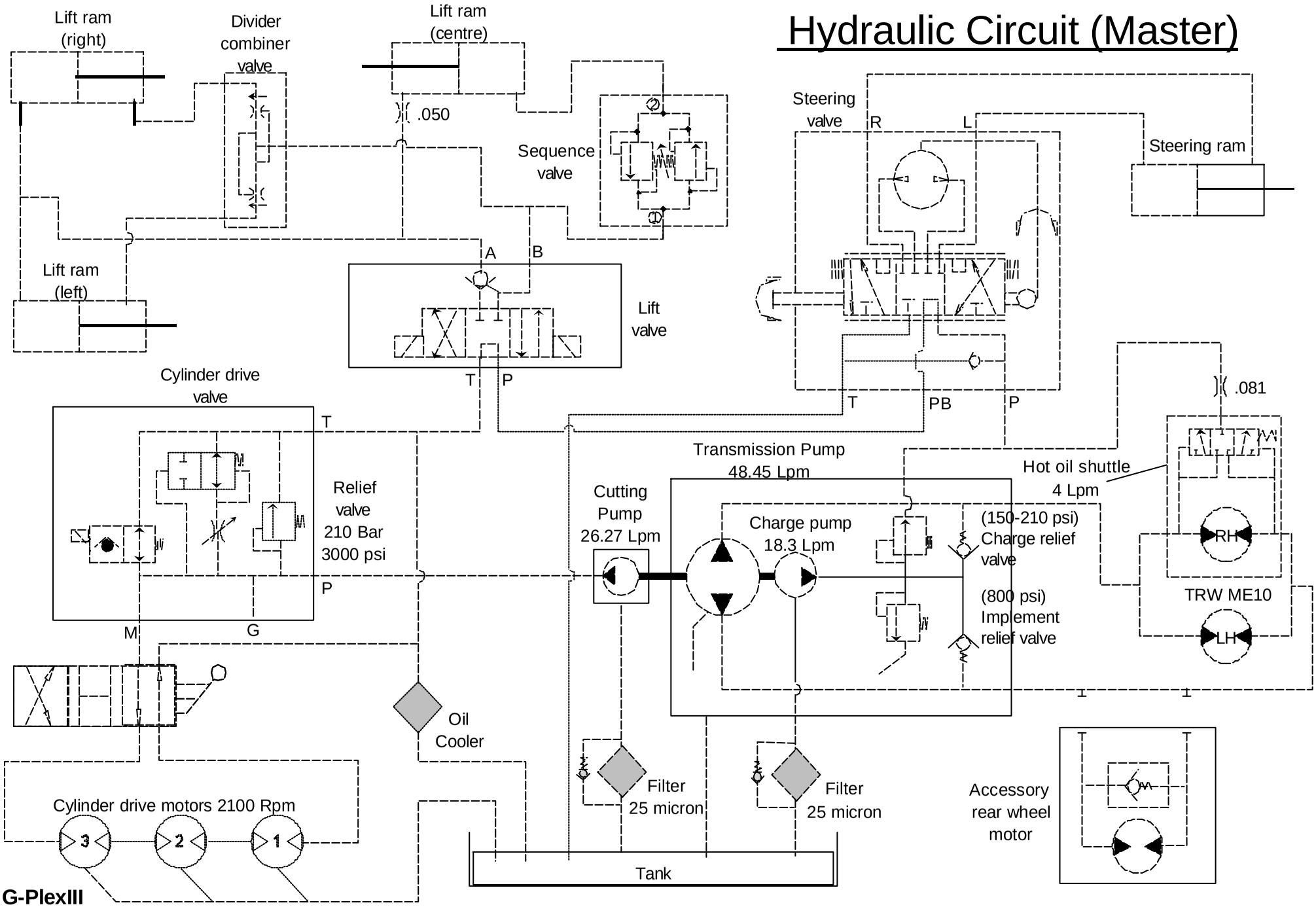
G-PlexII

SECTION 8
HYDRAULICS FOR DP SERIES

Hydraulic Schematic Diagrams

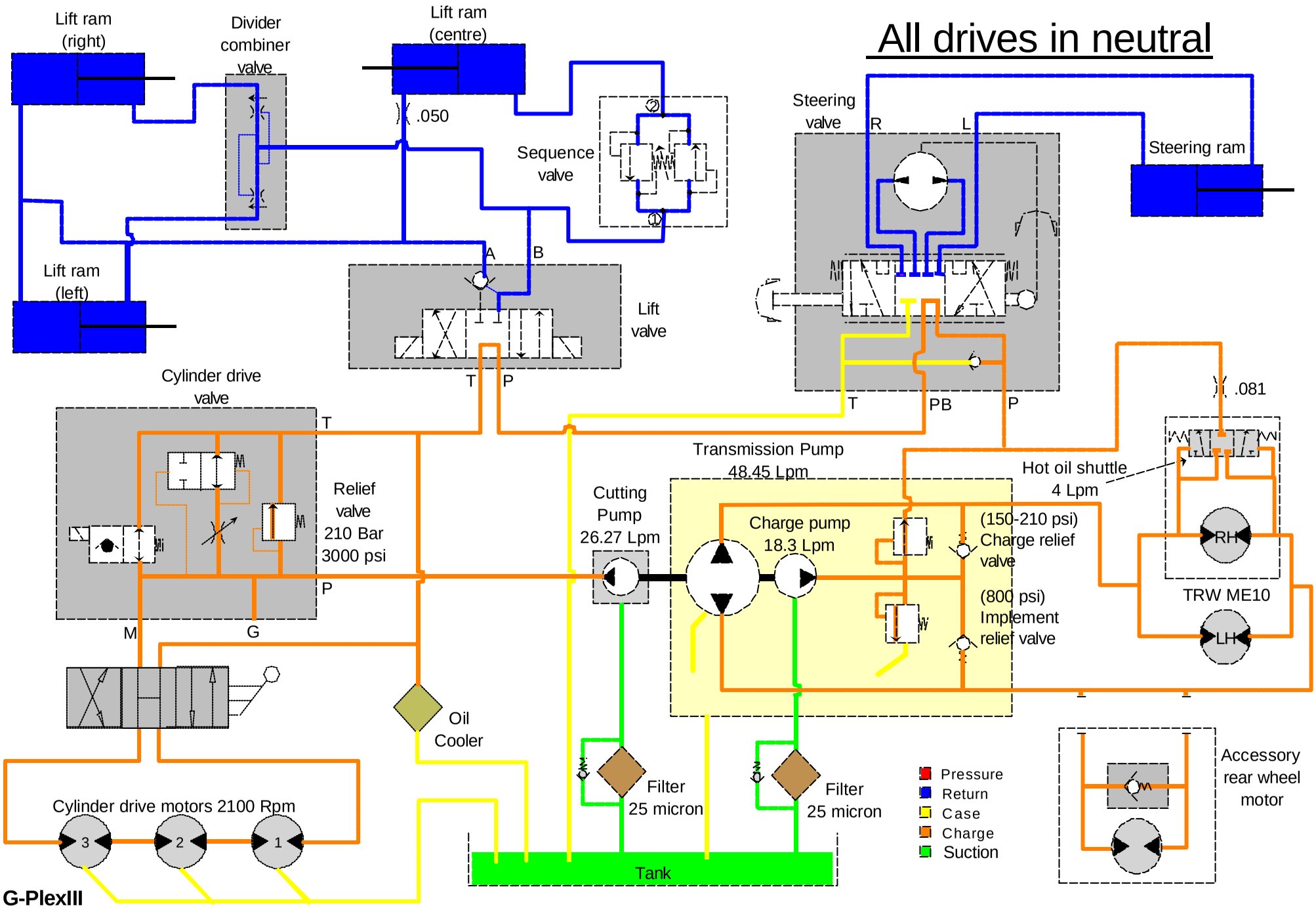
DP Series machines fitted with Bi-directional relief valve (no pressure switch, as used with the new timed lift/lower pic module).

Hydraulic Circuit (Master)

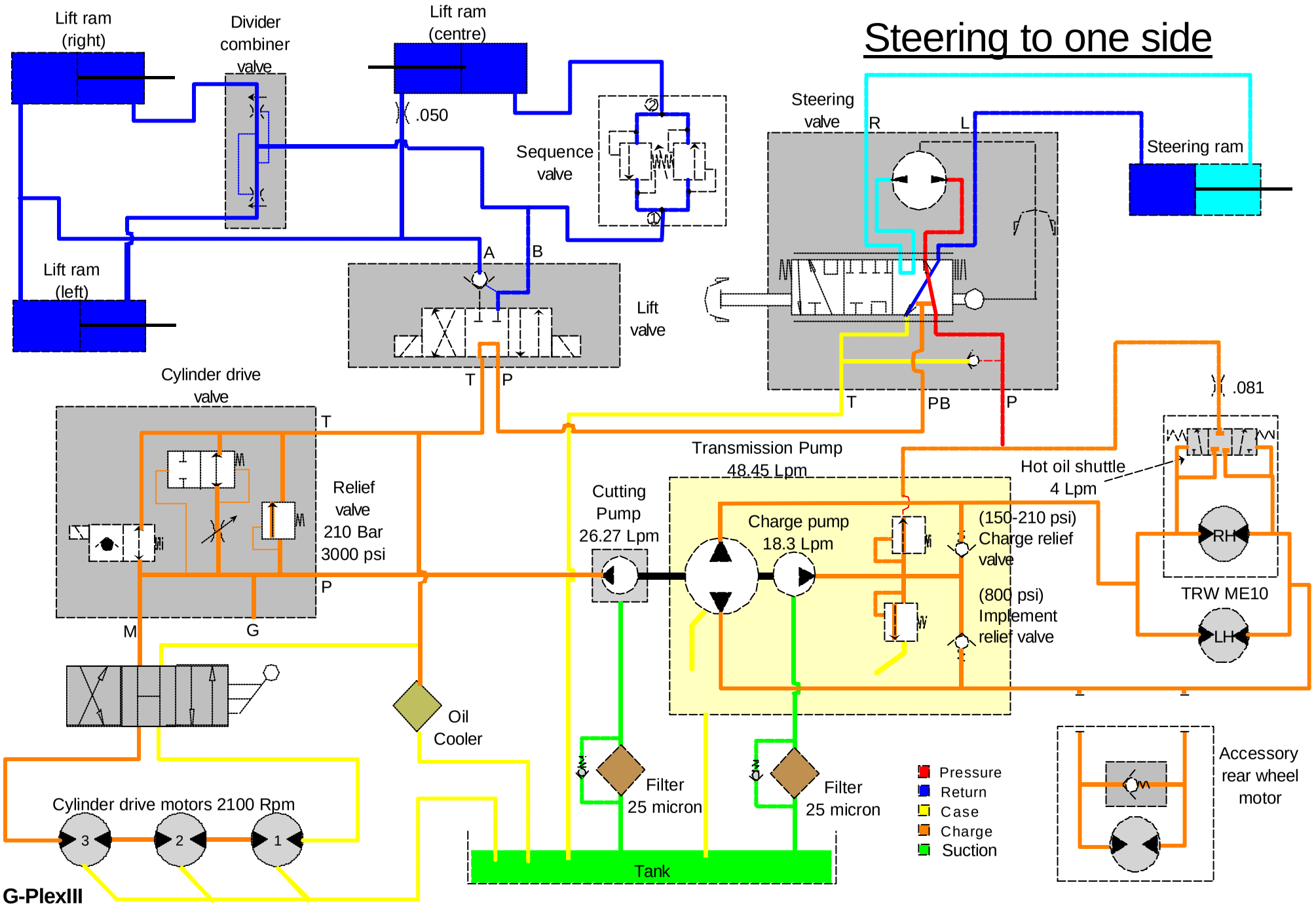


G-PlexIII

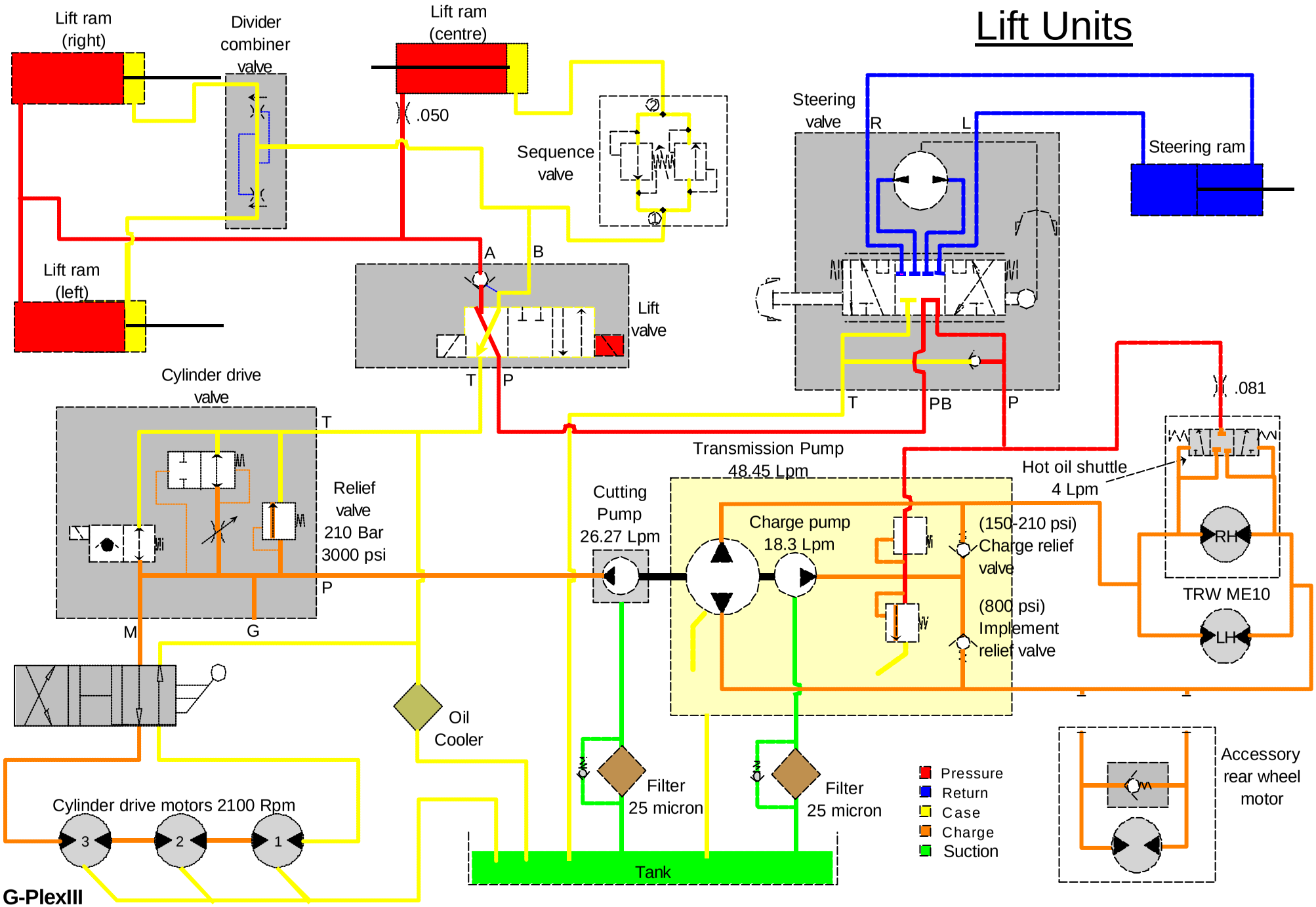
All drives in neutral

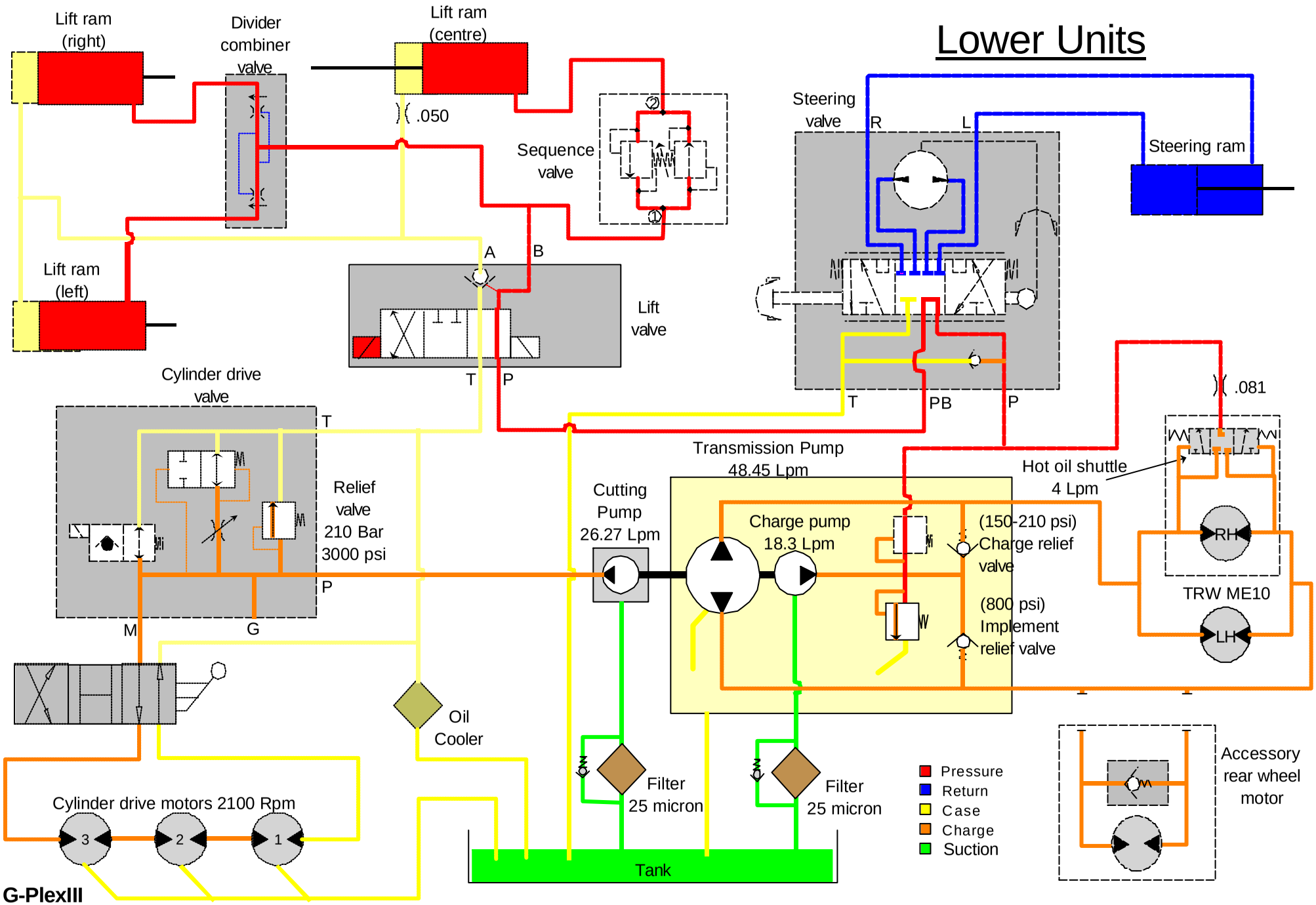


Steering to one side

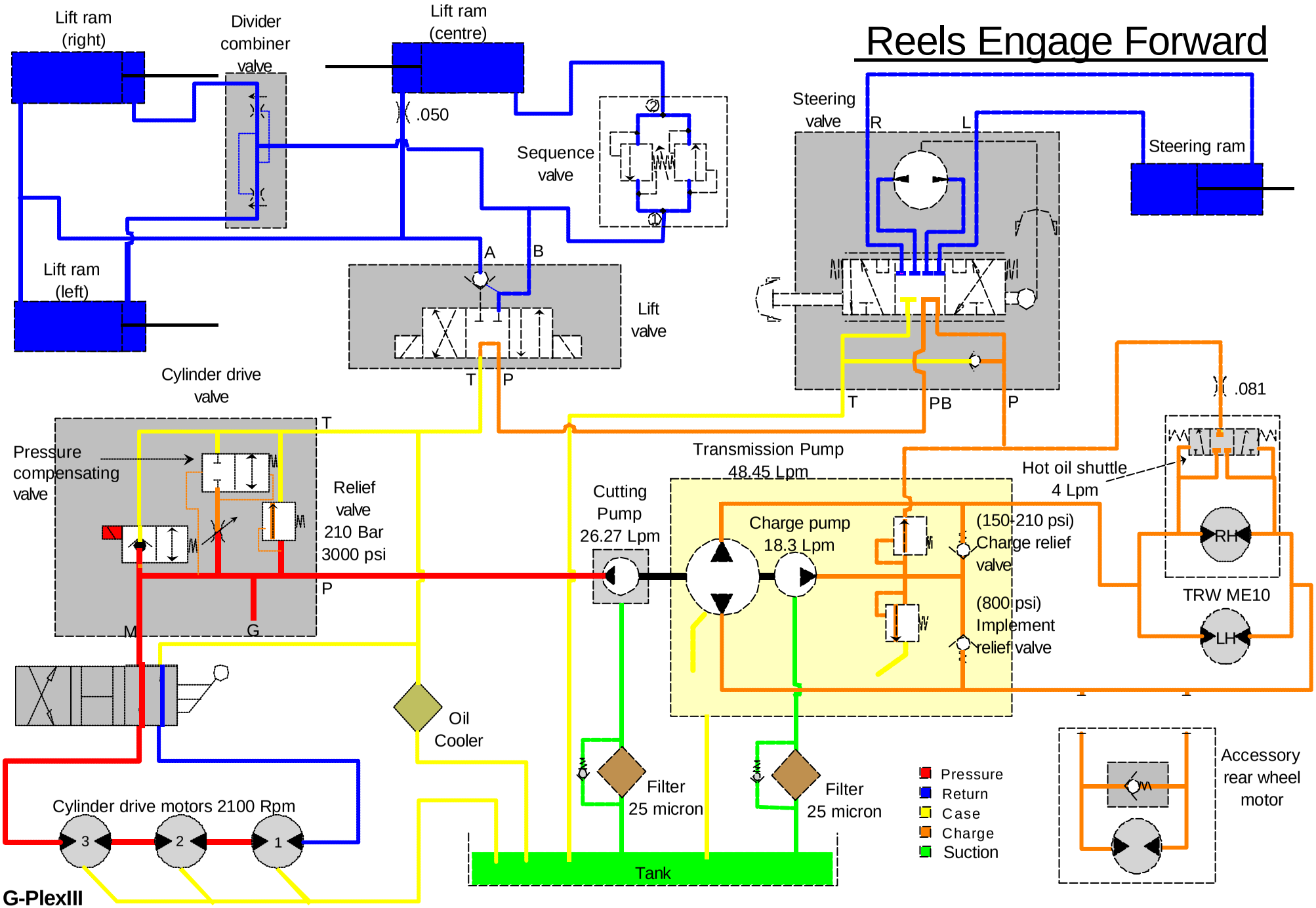


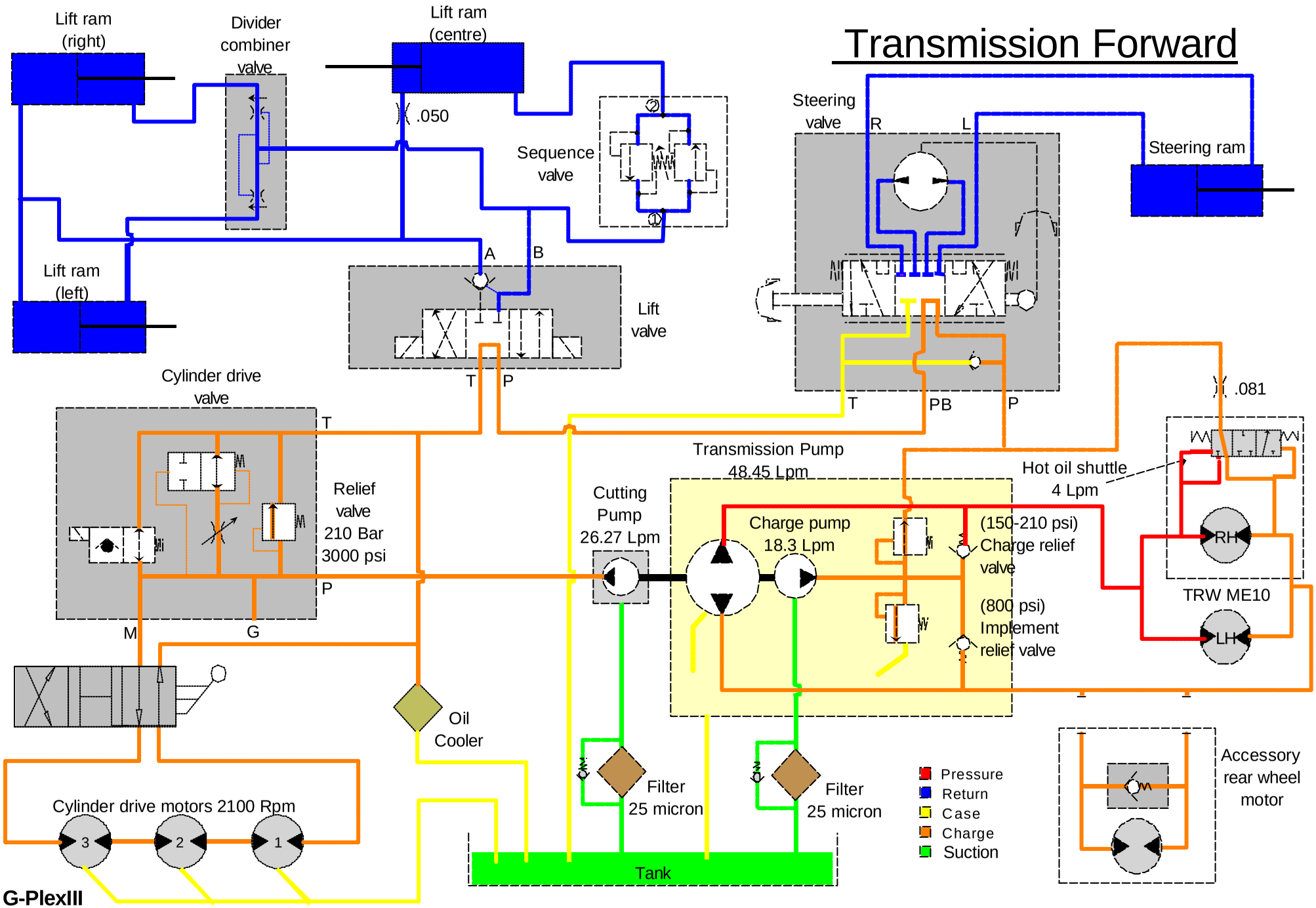
Lift Units


Lift ram (right)
Divider combiner valve
Lift ram (centre)
.050
Sequence valve
Steering valve
R
L
Steering ram
Lift ram (left)
A
B
Lift valve
T
P
T
PB
P
Cylinder drive valve
T
Relief valve 210 Bar 3000 psi
P
M
G
.081
Transmission Pump 48.45 Lpm
Hot oil shuttle 4 Lpm
Cutting Pump 26.27 Lpm
Charge pump 18.3 Lpm
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
RH
TRW ME10
LH
Oil Cooler
Filter 25 micron
Filter 25 micron
Pressure
Return
Case
Charge
Suction
Accessory rear wheel motor
Cylinder drive motors 2100 Rpm
3
2
1
Tank
G-PlexIII

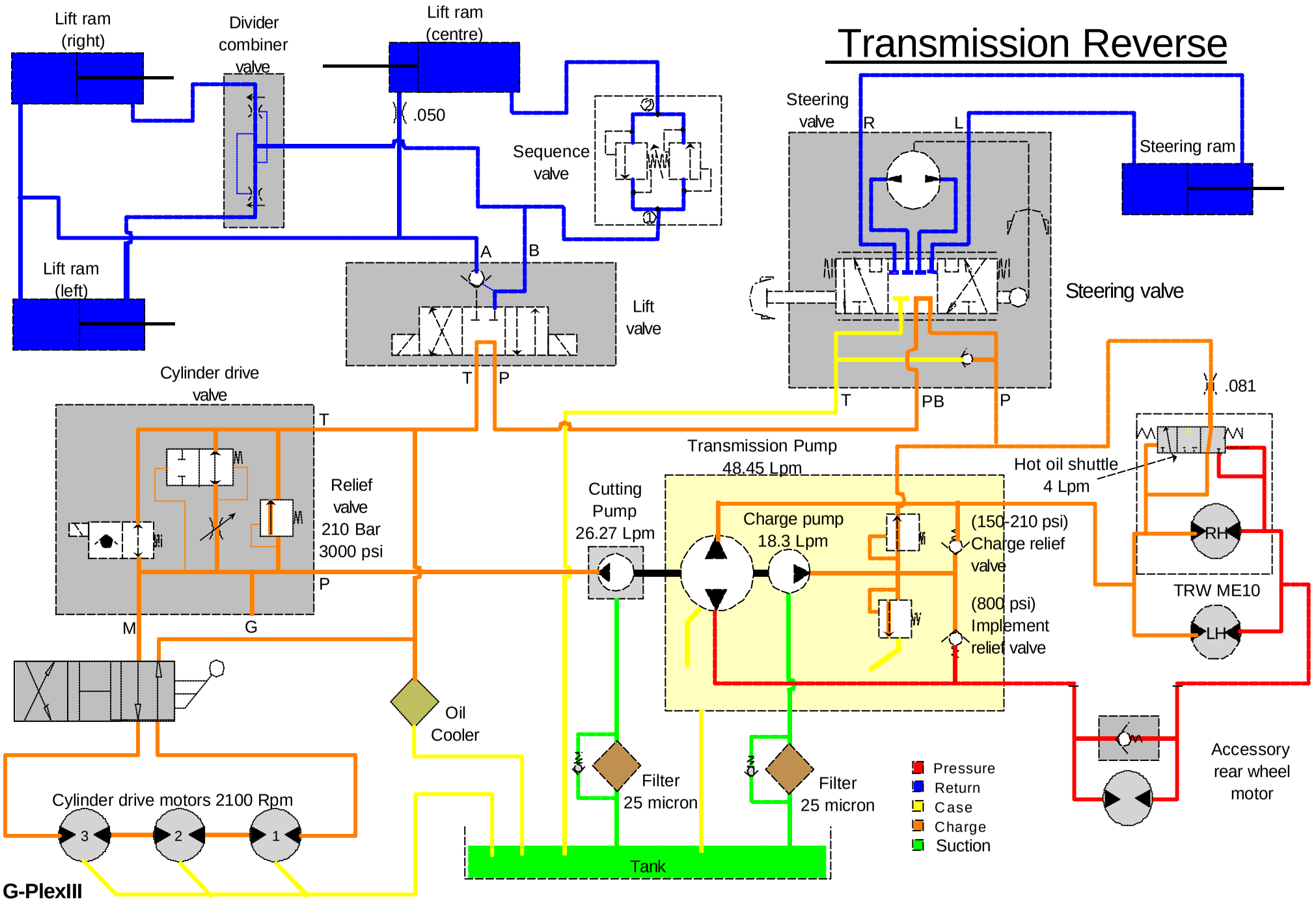

Lower Units
Lift ram (right)
Divider combiner valve
Lift ram (centre)
.050
Sequence valve
Lift ram (left)
A
B
Lift valve
T
P
Steering valve
R
L
Steering ram
T
PB
P
.081
Cylinder drive valve
T
Relief valve 210 Bar 3000 psi
P
M
G
Transmission Pump 48.45 Lpm
Cutting Pump 26.27 Lpm
Charge pump 18.3 Lpm
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Hot oil shuttle 4 Lpm
RH
TRW ME10
LH
Oil Cooler
Filter 25 micron
Filter 25 micron
Cylinder drive motors 2100 Rpm
3
2
1
Tank
Pressure
Return
Case
Charge
Suction
Accessory rear wheel motor
G-PlexIII

Reels Engage Forward




Transmission Forward
Lift ram (right)
Divider combiner valve
Lift ram (centre)
.050
Sequence valve
Lift ram (left)
A
B
Lift valve
T
P
Steering valve
R
L
Steering ram
T
PB
P
Cylinder drive valve
T
Relief valve 210 Bar 3000 psi
P
M
G
Transmission Pump 48.45 Lpm
Cutting Pump 26.27 Lpm
Charge pump 18.3 Lpm
(150-210 psi) Charge relief valve
(800 psi) Implement relief valve
Hot oil shuttle 4 Lpm
.081
RH
TRW ME10
LH
Oil Cooler
Filter 25 micron
Filter 25 micron
Cylinder drive motors 2100 Rpm
3
2
1
Tank
Pressure
Return
Case
Charge
Suction
Accessory rear wheel motor
G-PlexIII

Transmission Reverse

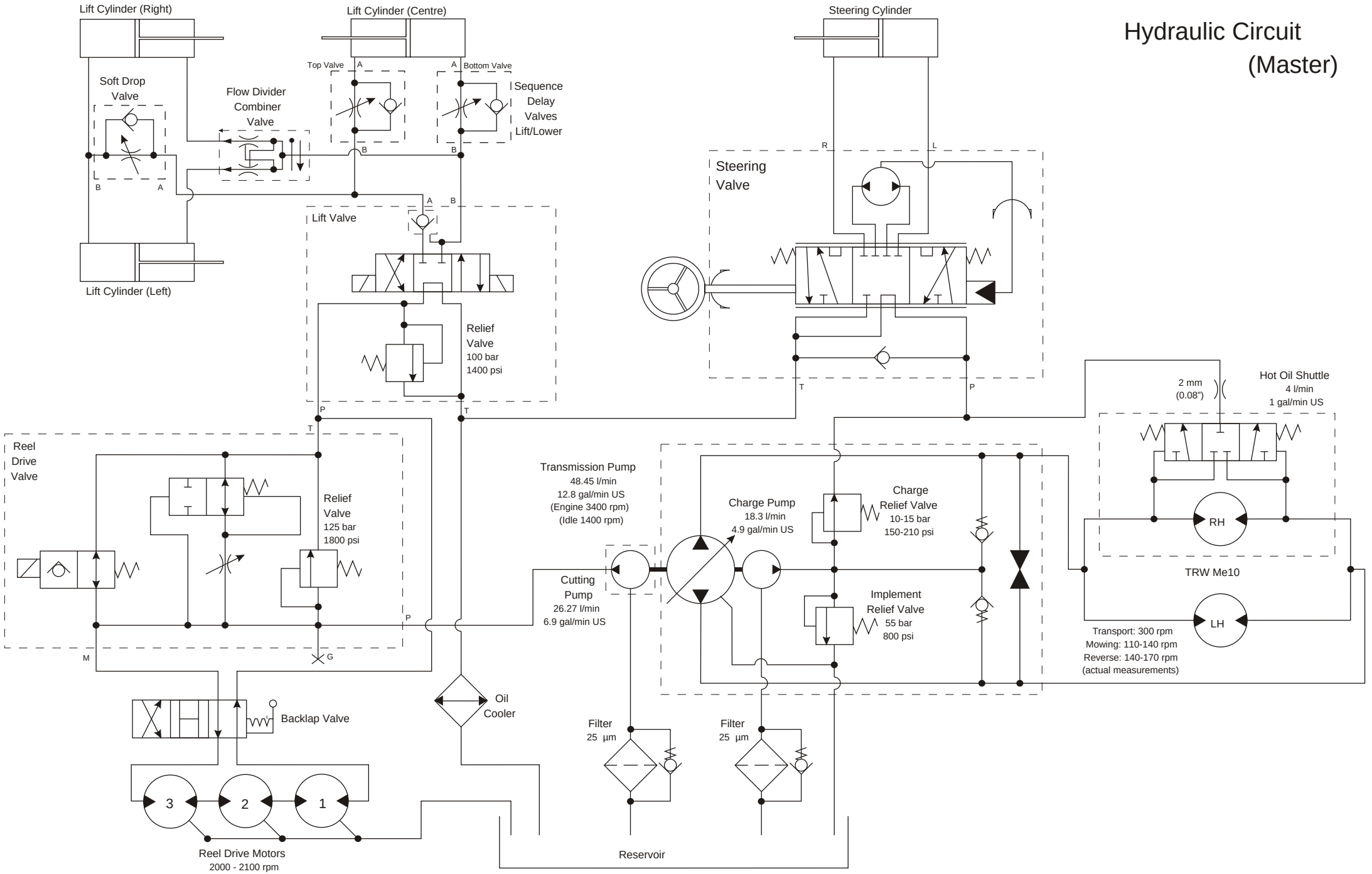


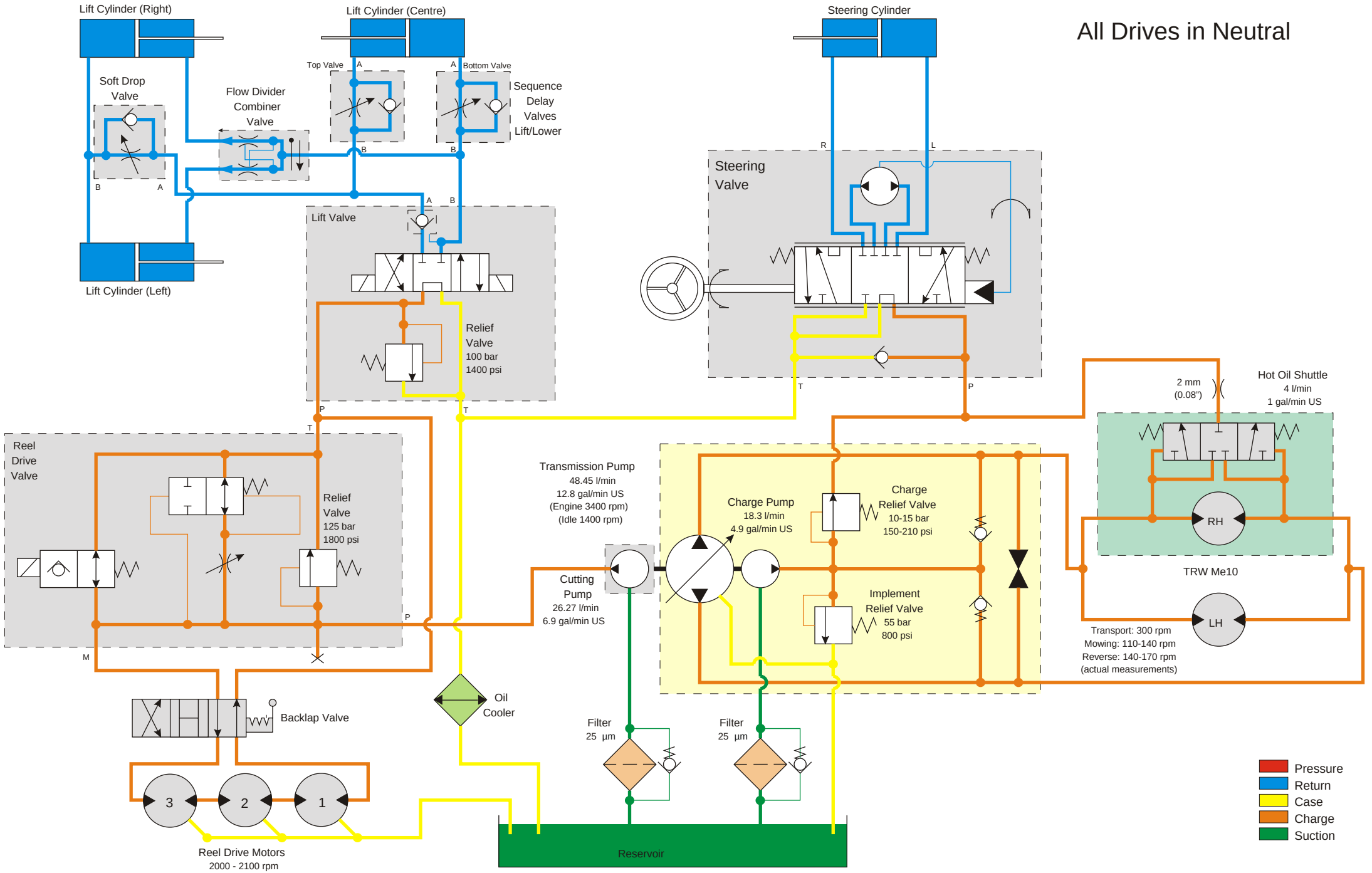
SECTION 8
HYDRAULICS - FN & FJ SERIES

Hydraulic Schematic Diagrams

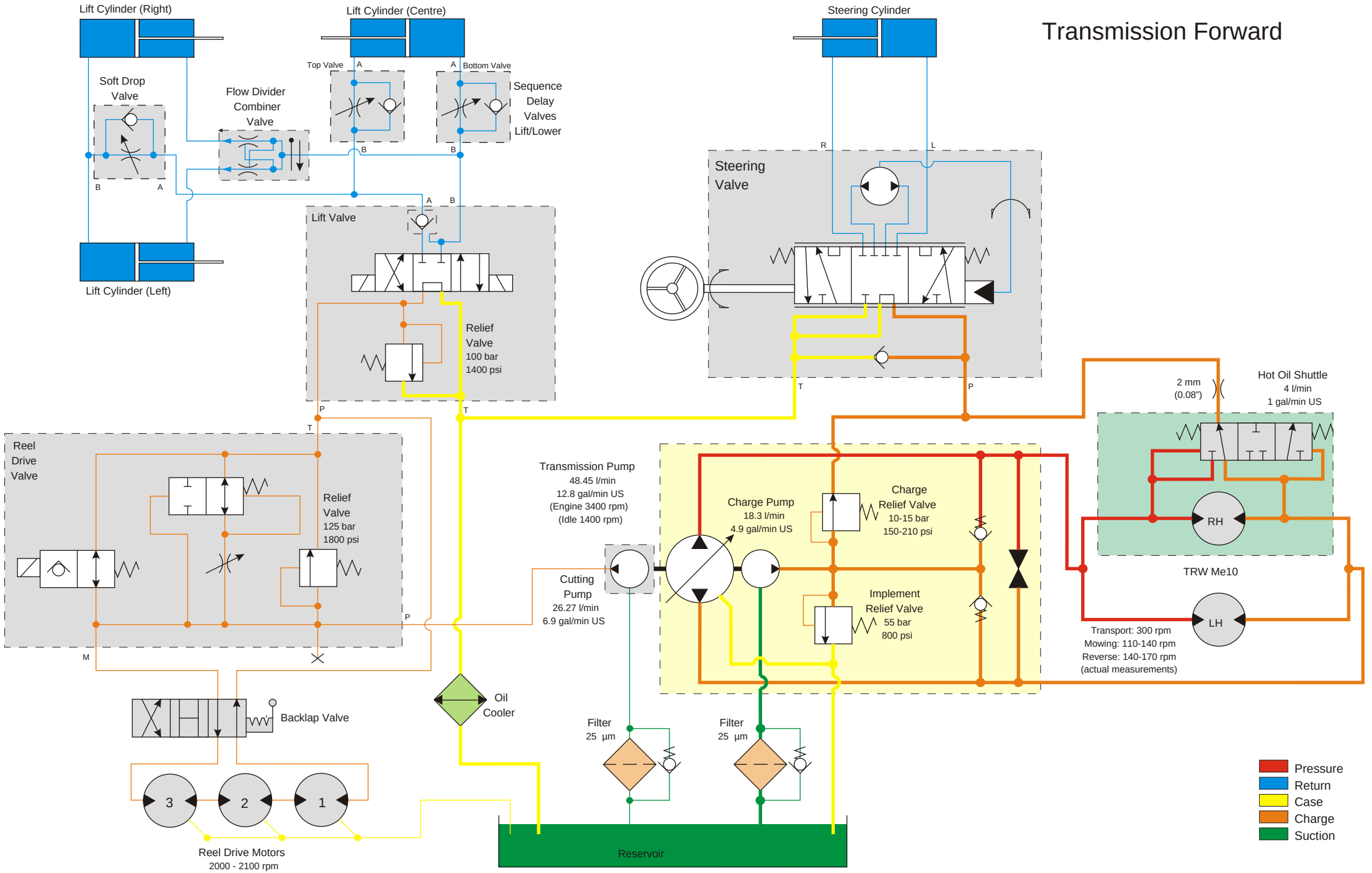
FN & FJ Series machines fitted with new cutting and lift circuit (Plus 1 Controller)

Hydraulic Circuit (Master)

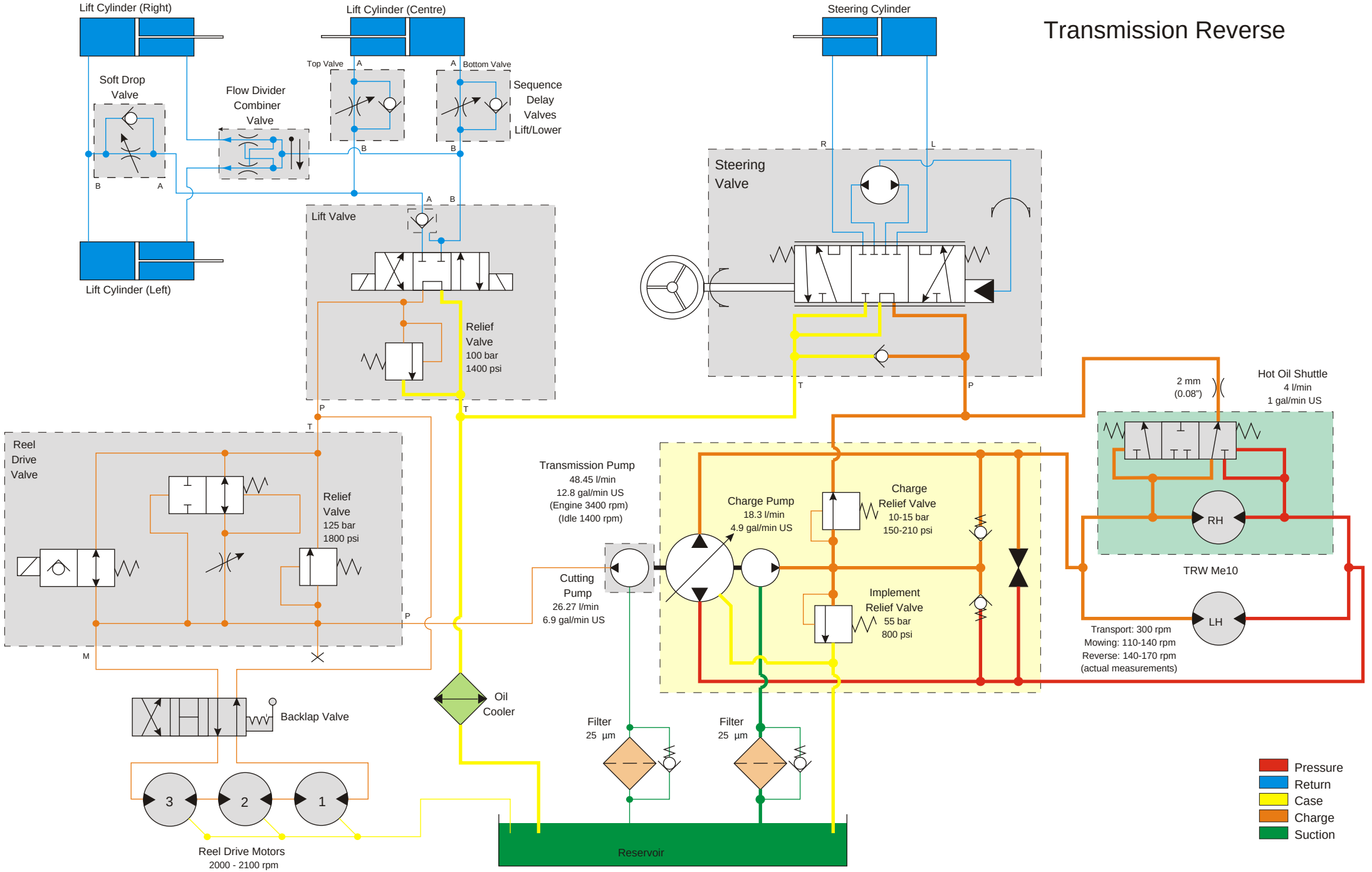



All Drives in Neutral
Lift Cylinder (Right)
Lift Cylinder (Centre)
Steering Cylinder
Soft Drop Valve
Flow Divider Combiner Valve
Top Valve
Bottom Valve
Sequence Delay Valves Lift/Lower
Lift Cylinder (Left)
Lift Valve
Relief Valve 100 bar 1400 psi
Steering Valve
Reel Drive Valve
Relief Valve 125 bar 1800 psi
Transmission Pump 48.45 l/min 12.8 gal/min US (Engine 3400 rpm) (Idle 1400 rpm)
Charge Pump 18.3 l/min 4.9 gal/min US
Charge Relief Valve 10-15 bar 150-210 psi
Implement Relief Valve 55 bar 800 psi
Cutting Pump 26.27 l/min 6.9 gal/min US
2 mm (0.08")
Hot Oil Shuttle 4 l/min 1 gal/min US
RH
LH
TRW Me10
Transport: 300 rpm
Mowing: 110-140 rpm
Reverse: 140-170 rpm
(actual measurements)
Oil Cooler
Backlap Valve
Filter 25 µm
Filter 25 µm
Reel Drive Motors 2000 - 2100 rpm
Reservoir
Pressure
Return
Case
Charge
Suction

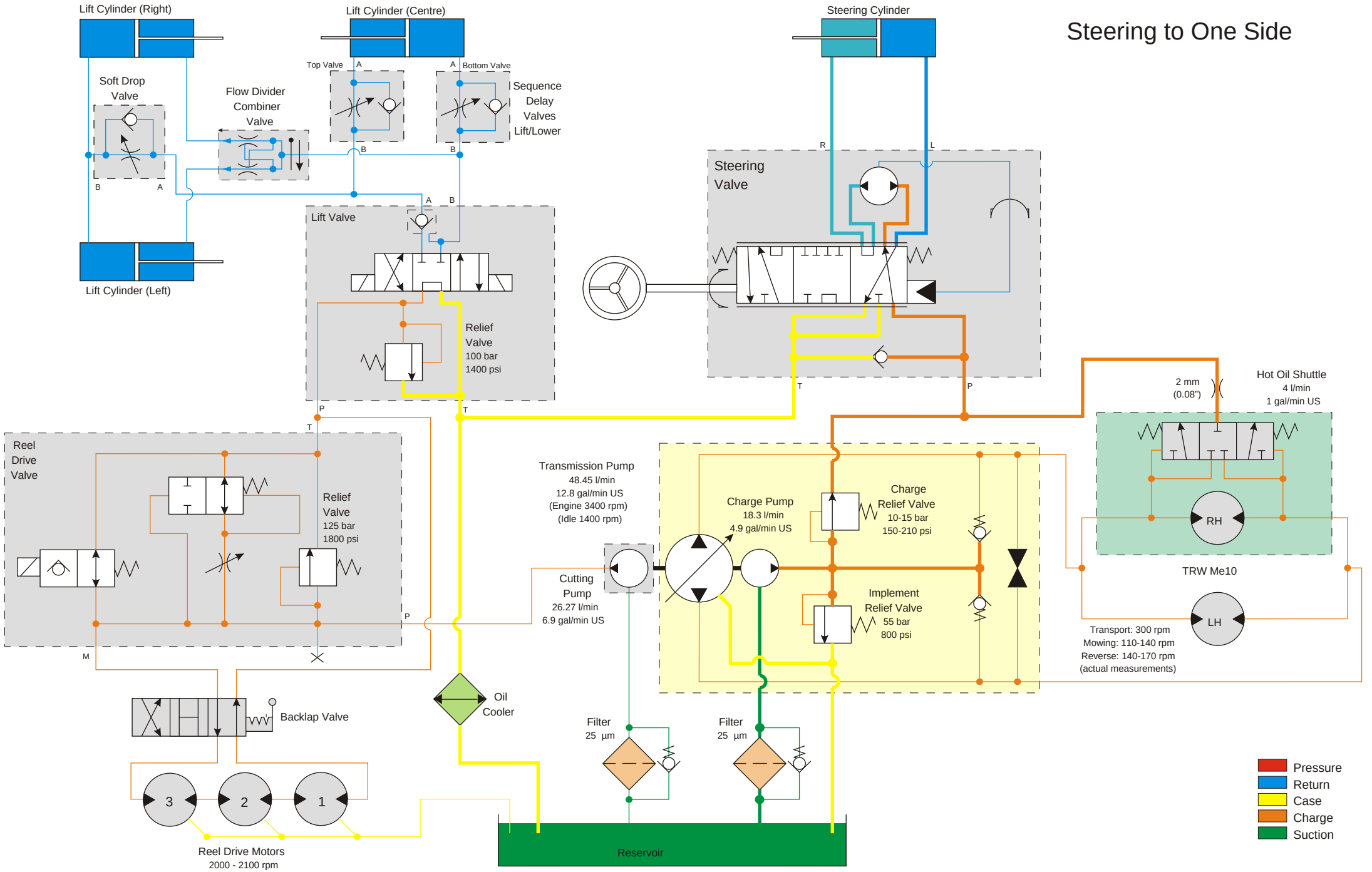
Transmission Forward



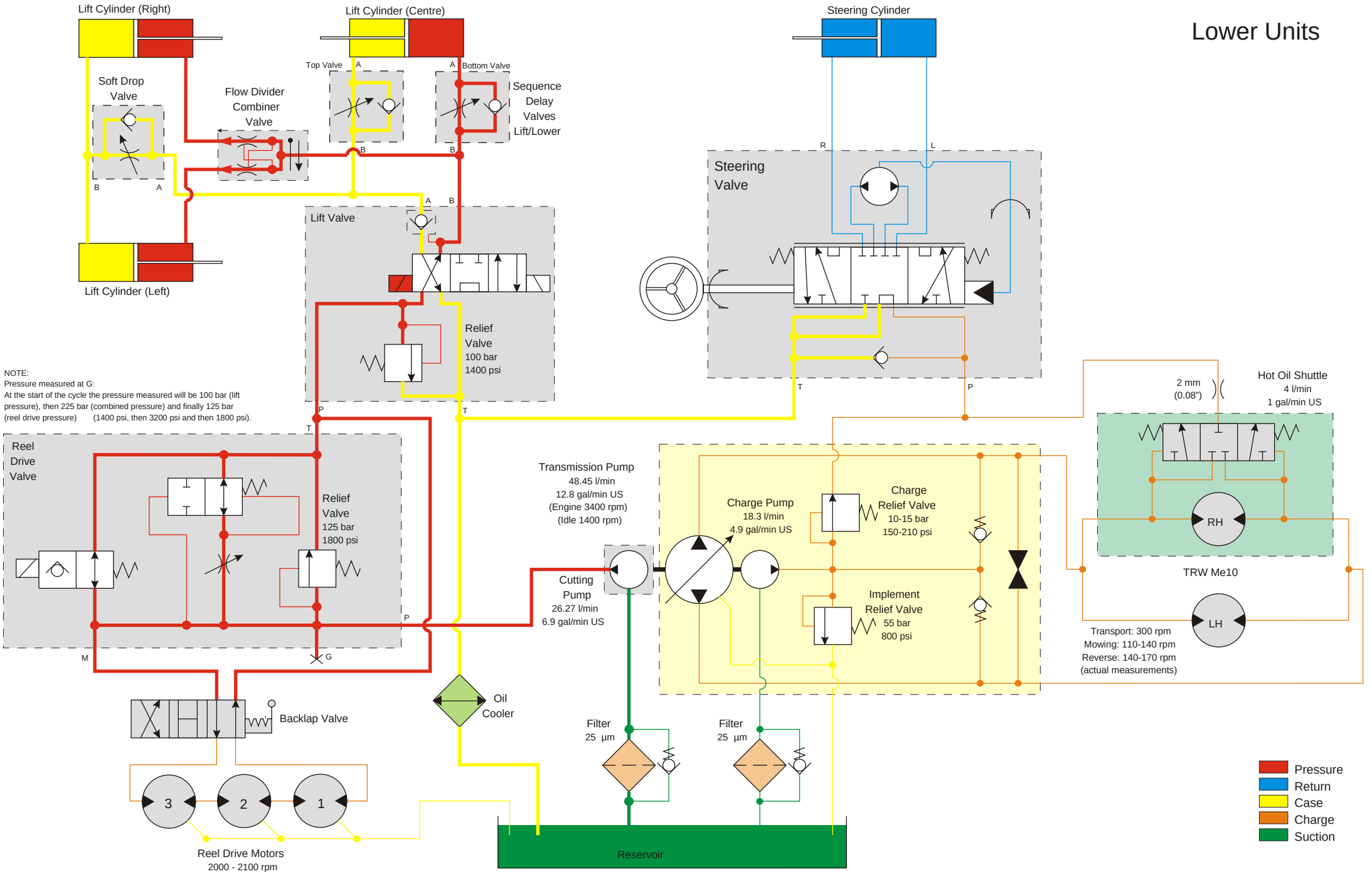
Transmission Reverse



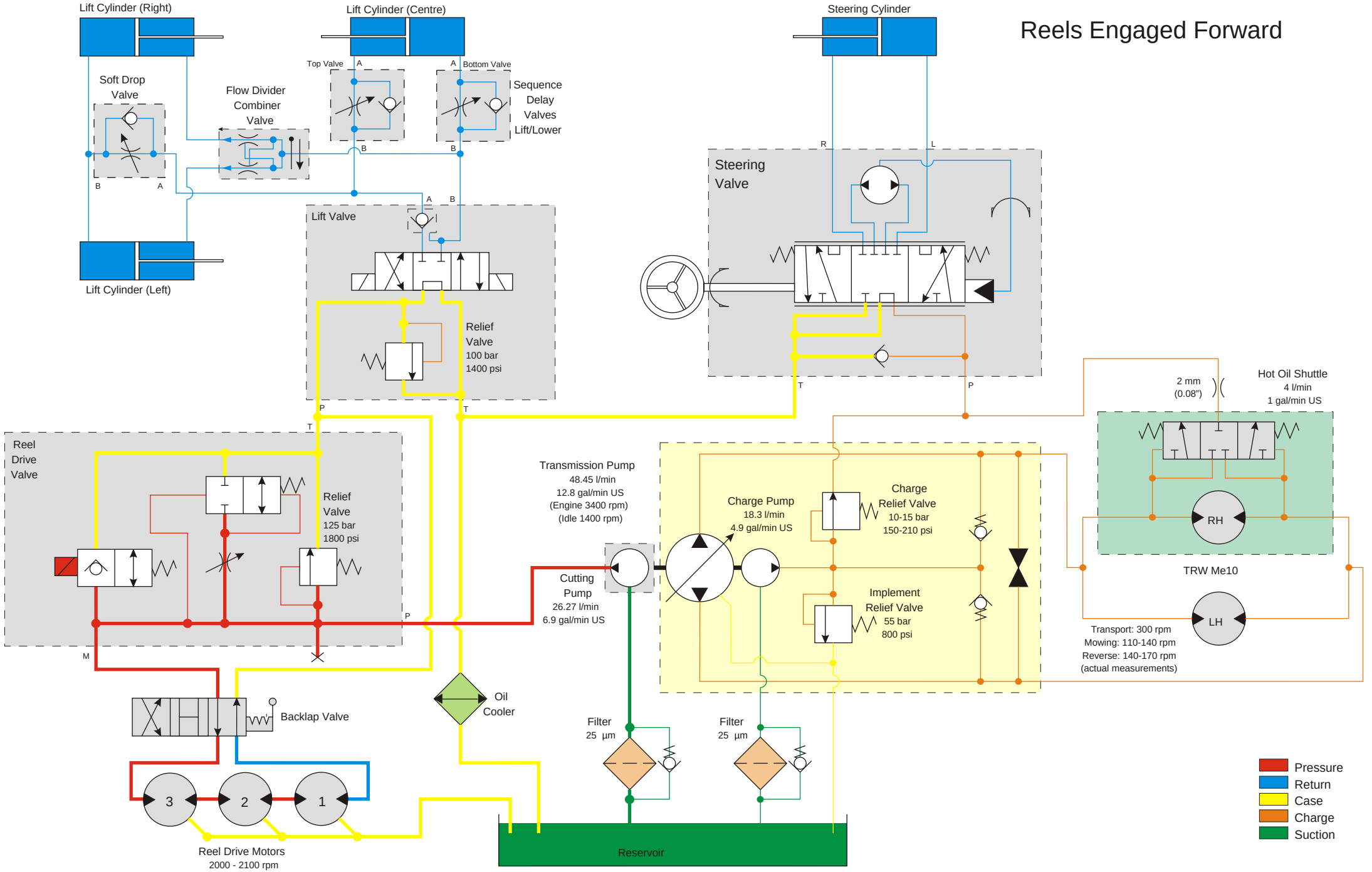
Steering to One Side



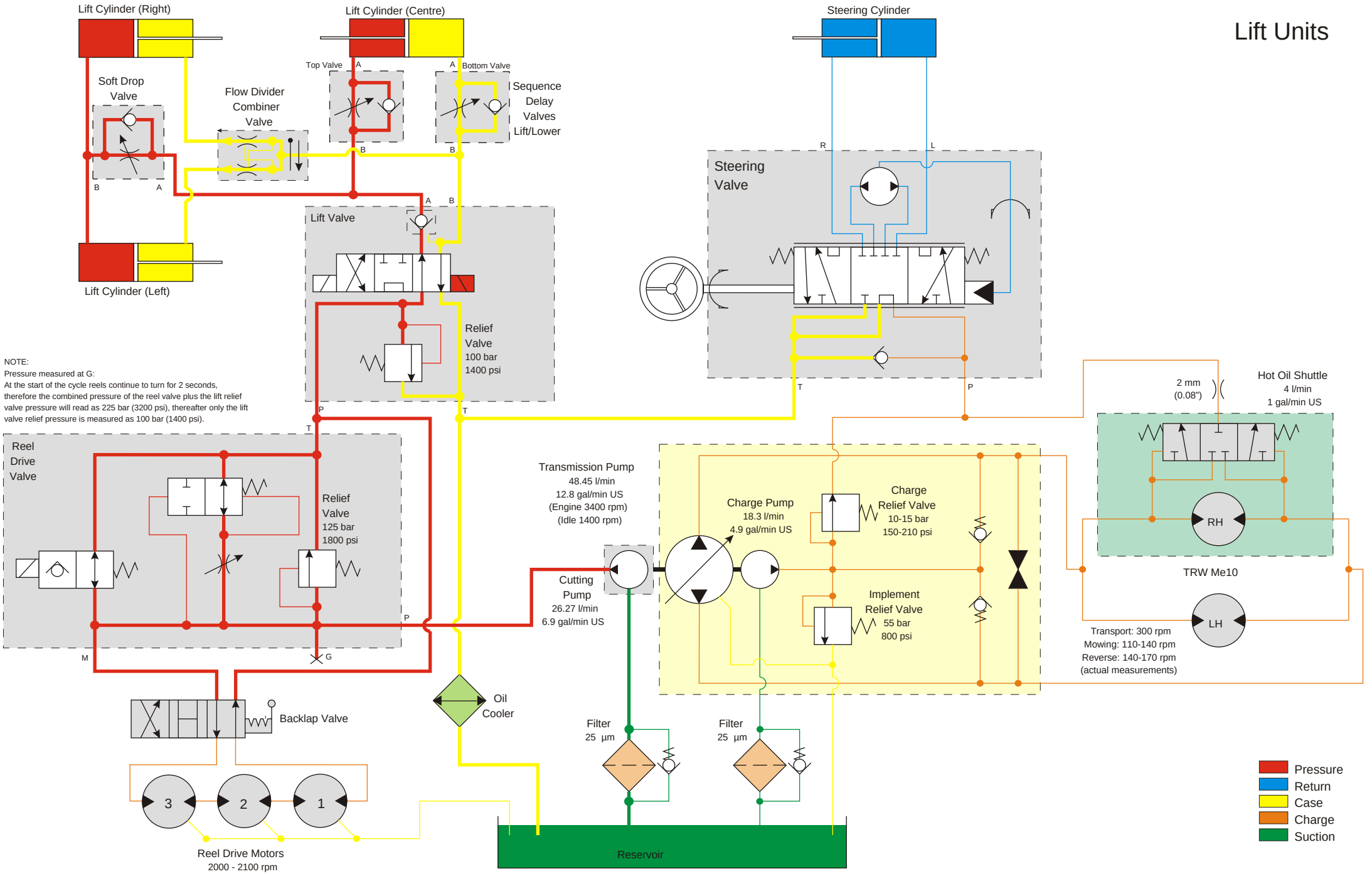
Lower Units


Lift Cylinder (Right)
Lift Cylinder (Centre)
Steering Cylinder
Soft Drop Valve
Flow Divider Combiner Valve
Top Valve
Bottom Valve
Sequence Delay Valves Lift/Lower
Lift Cylinder (Left)
Lift Valve
Relief Valve 100 bar 1400 psi
Steering Valve
NOTE:
Pressure measured at G:
At the start of the cycle the pressure measured will be 100 bar (lift pressure), then 225 bar (combined pressure) and finally 125 bar (reel drive pressure) (1400 psi, then 3200 psi and then 1800 psi).
Reel Drive Valve
Relief Valve 125 bar 1800 psi
Transmission Pump 48.45 l/min 12.8 gal/min US (Engine 3400 rpm) (Idle 1400 rpm)
Charge Pump 18.3 l/min 4.9 gal/min US
Charge Relief Valve 10-15 bar 150-210 psi
Implement Relief Valve 55 bar 800 psi
Cutting Pump 26.27 l/min 6.9 gal/min US
2 mm (0.08")
Hot Oil Shuttle 4 l/min 1 gal/min US
RH
LH
TRW Me10
Transport: 300 rpm
Mowing: 110-140 rpm
Reverse: 140-170 rpm
(actual measurements)
Backlap Valve
Oil Cooler
Filter 25 µm
Filter 25 µm
3
2
1
Reel Drive Motors 2000 - 2100 rpm
Reservoir
Pressure
Return
Case
Charge
Suction

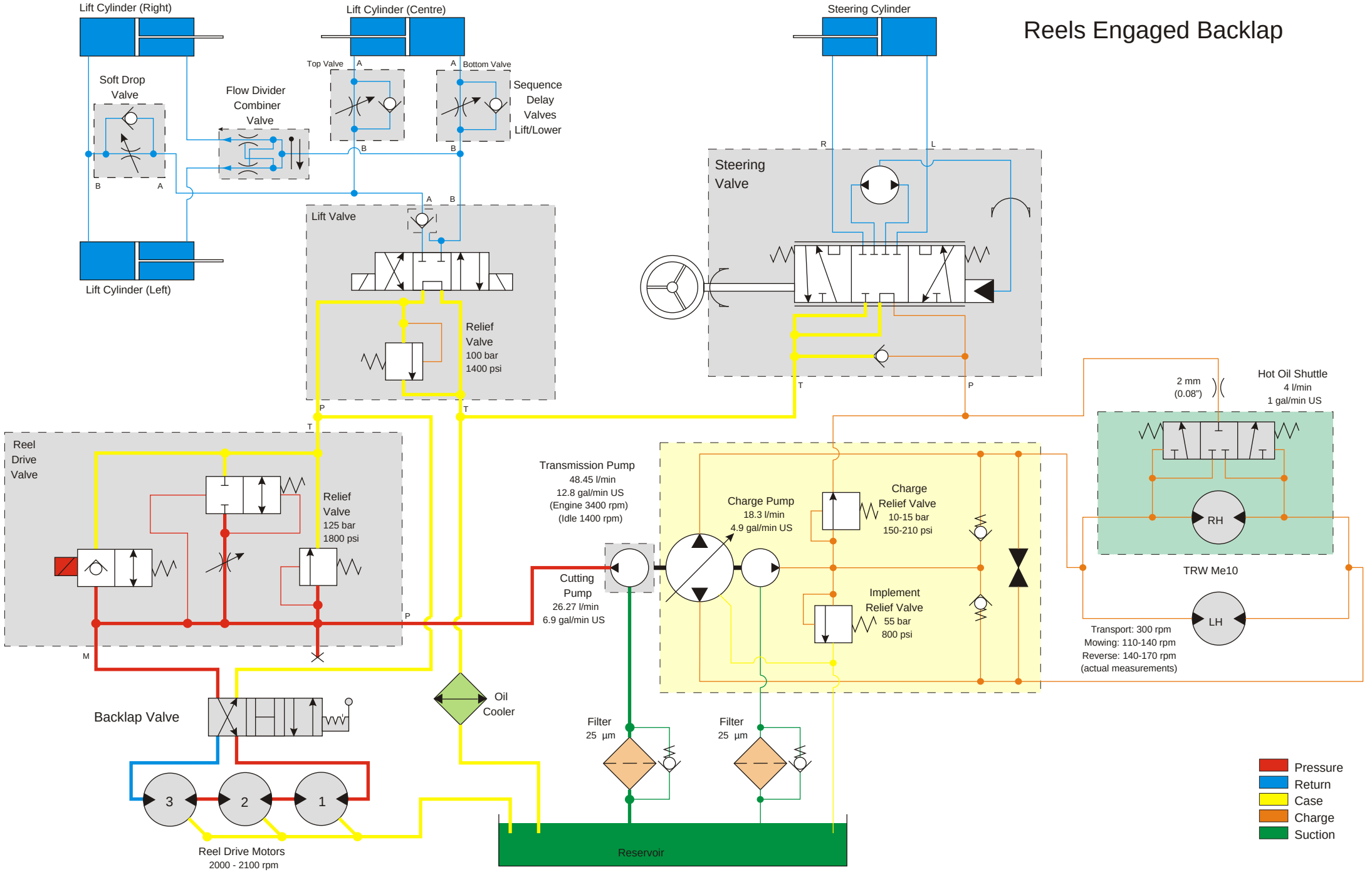
Reels Engaged Forward

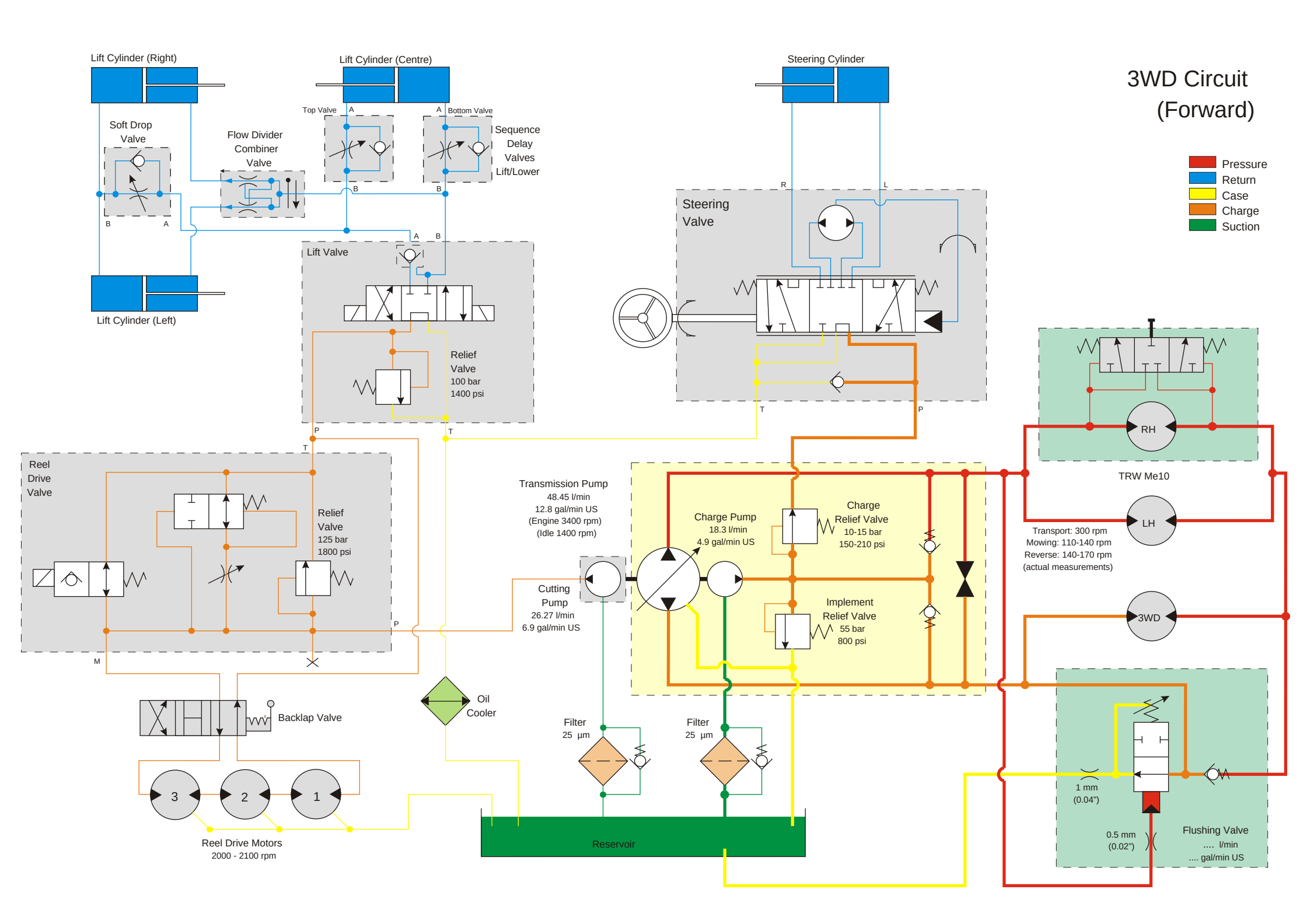


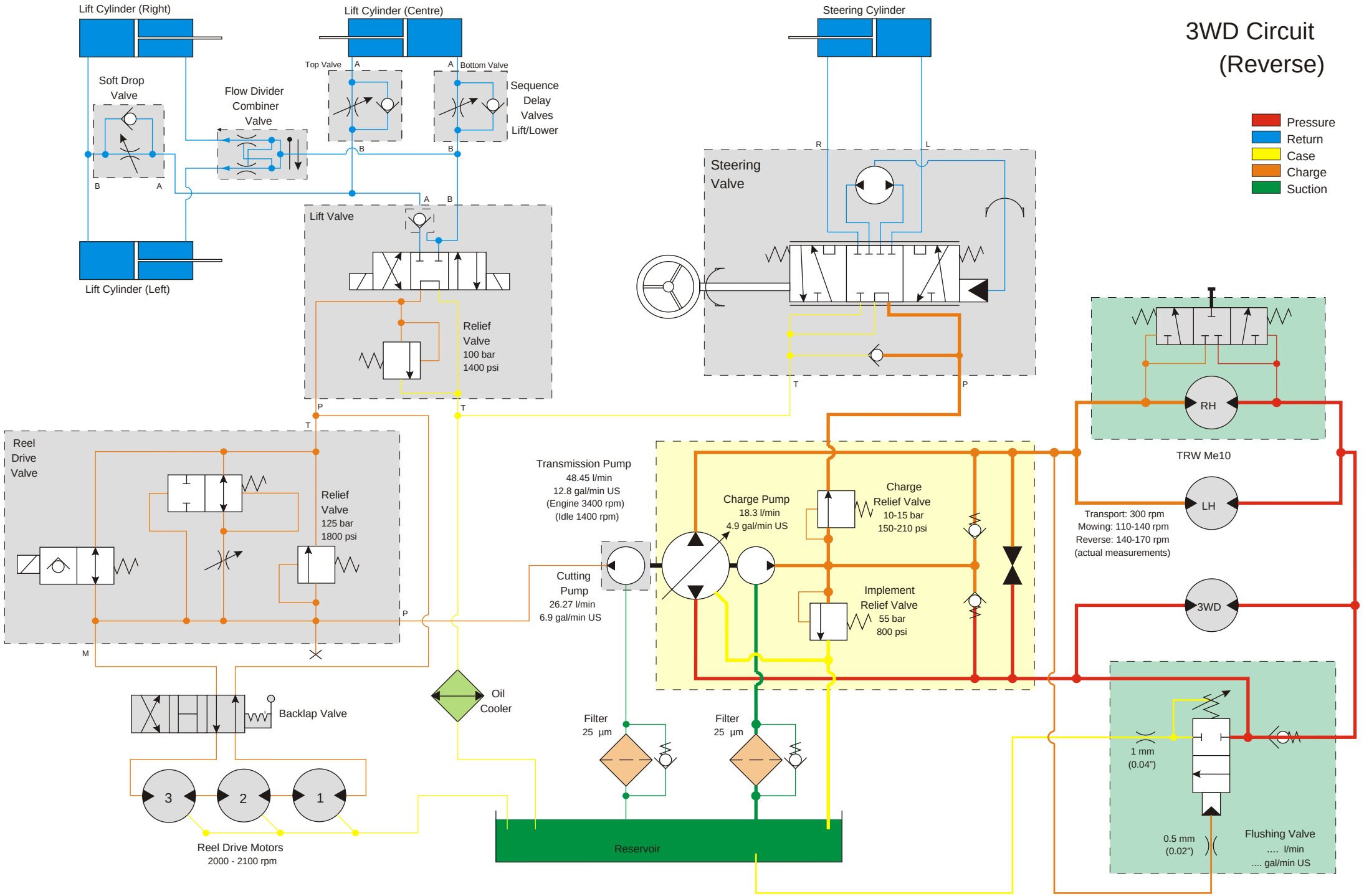
Lift Units


Lift Cylinder (Right)
Lift Cylinder (Centre)
Steering Cylinder
Soft Drop Valve
Flow Divider Combiner Valve
Top Valve
Bottom Valve
Sequence Delay Valves Lift/Lower
Lift Cylinder (Left)
Lift Valve
Relief Valve 100 bar 1400 psi
Steering Valve
NOTE:
Pressure measured at G:
At the start of the cycle reels continue to turn for 2 seconds, therefore the combined pressure of the reel valve plus the lift relief valve pressure will read as 225 bar (3200 psi), thereafter only the lift valve relief pressure is measured as 100 bar (1400 psi).
Reel Drive Valve
Relief Valve 125 bar 1800 psi
Transmission Pump 48.45 l/min 12.8 gal/min US (Engine 3400 rpm) (Idle 1400 rpm)
Charge Pump 18.3 l/min 4.9 gal/min US
Charge Relief Valve 10-15 bar 150-210 psi
Implement Relief Valve 55 bar 800 psi
Cutting Pump 26.27 l/min 6.9 gal/min US
2 mm (0.08")
Hot Oil Shuttle 4 l/min 1 gal/min US
RH
LH
TRW Me10
Transport: 300 rpm
Mowing: 110-140 rpm
Reverse: 140-170 rpm
(actual measurements)
Backlap Valve
Oil Cooler
Filter 25 µm
Filter 25 µm
Reel Drive Motors 2000 - 2100 rpm
Reservoir
Pressure
Return
Case
Charge
Suction

Reels Engaged Backlap

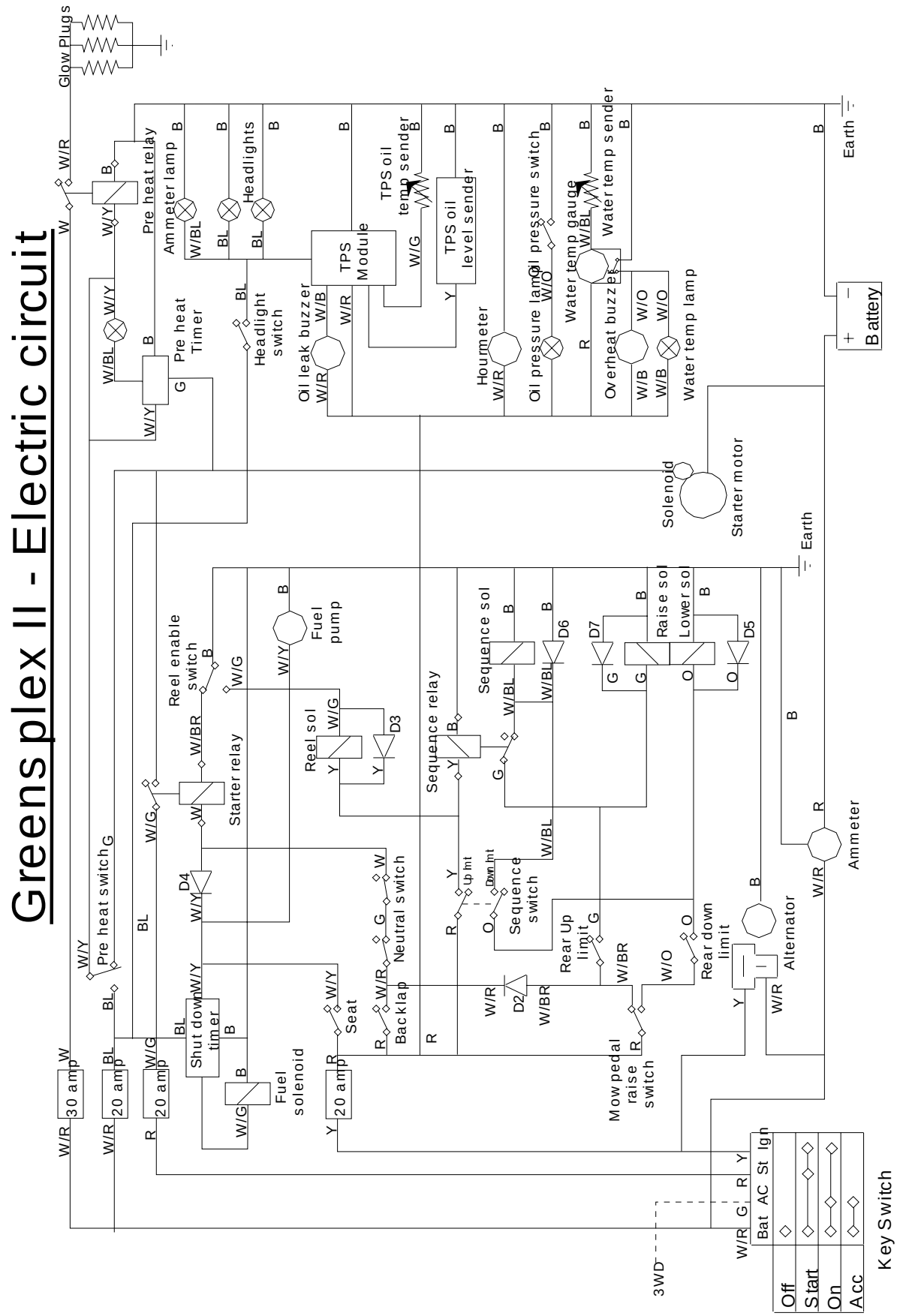


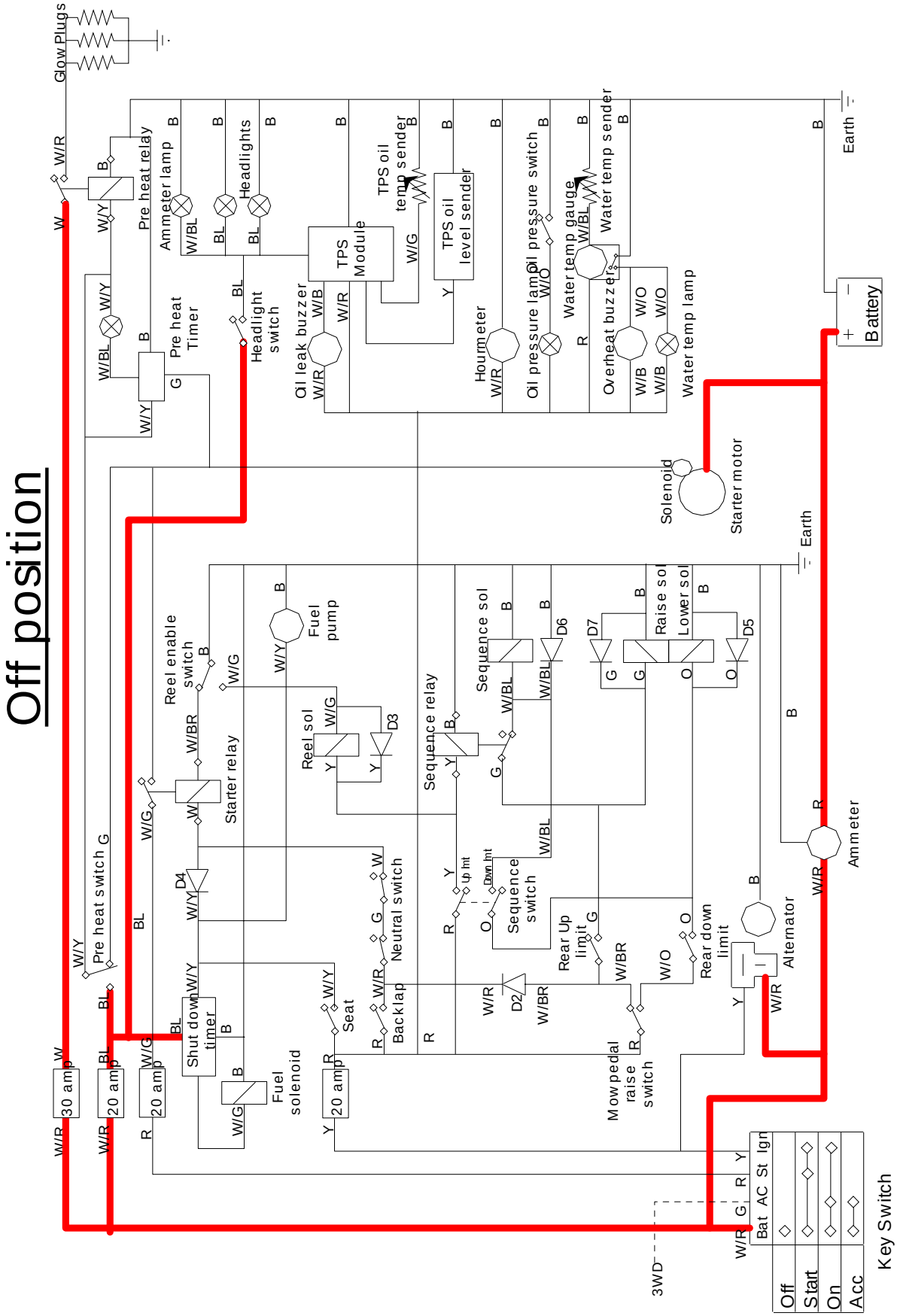

3WD Circuit
(Forward)
Pressure
Return
Case
Charge
Suction
Lift Cylinder (Right)
Lift Cylinder (Centre)
Steering Cylinder
Soft Drop
Valve
Flow Divider
Combiner
Valve
Top Valve
Bottom Valve
Sequence
Delay
Valves
Lift/Lower
Lift Cylinder (Left)
Lift Valve
Relief
Valve
100 bar
1400 psi
Steering
Valve
Reel
Drive
Valve
Relief
Valve
125 bar
1800 psi
Transmission Pump
48.45 l/min
12.8 gal/min US
(Engine 3400 rpm)
(Idle 1400 rpm)
Charge Pump
18.3 l/min
4.9 gal/min US
Charge
Relief Valve
10-15 bar
150-210 psi
Implement
Relief Valve
55 bar
800 psi
Cutting
Pump
26.27 l/min
6.9 gal/min US
RH
TRW Me10
LH
Transport: 300 rpm
Mowing: 110-140 rpm
Reverse: 140-170 rpm
(actual measurements)
3WD
Backlap Valve
Oil
Cooler
Filter
25 µm
Filter
25 µm
1 mm
(0.04")
0.5 mm
(0.02")
Flushing Valve
.... l/min
.... gal/min US
Reservoir
Reel Drive Motors
2000 - 2100 rpm

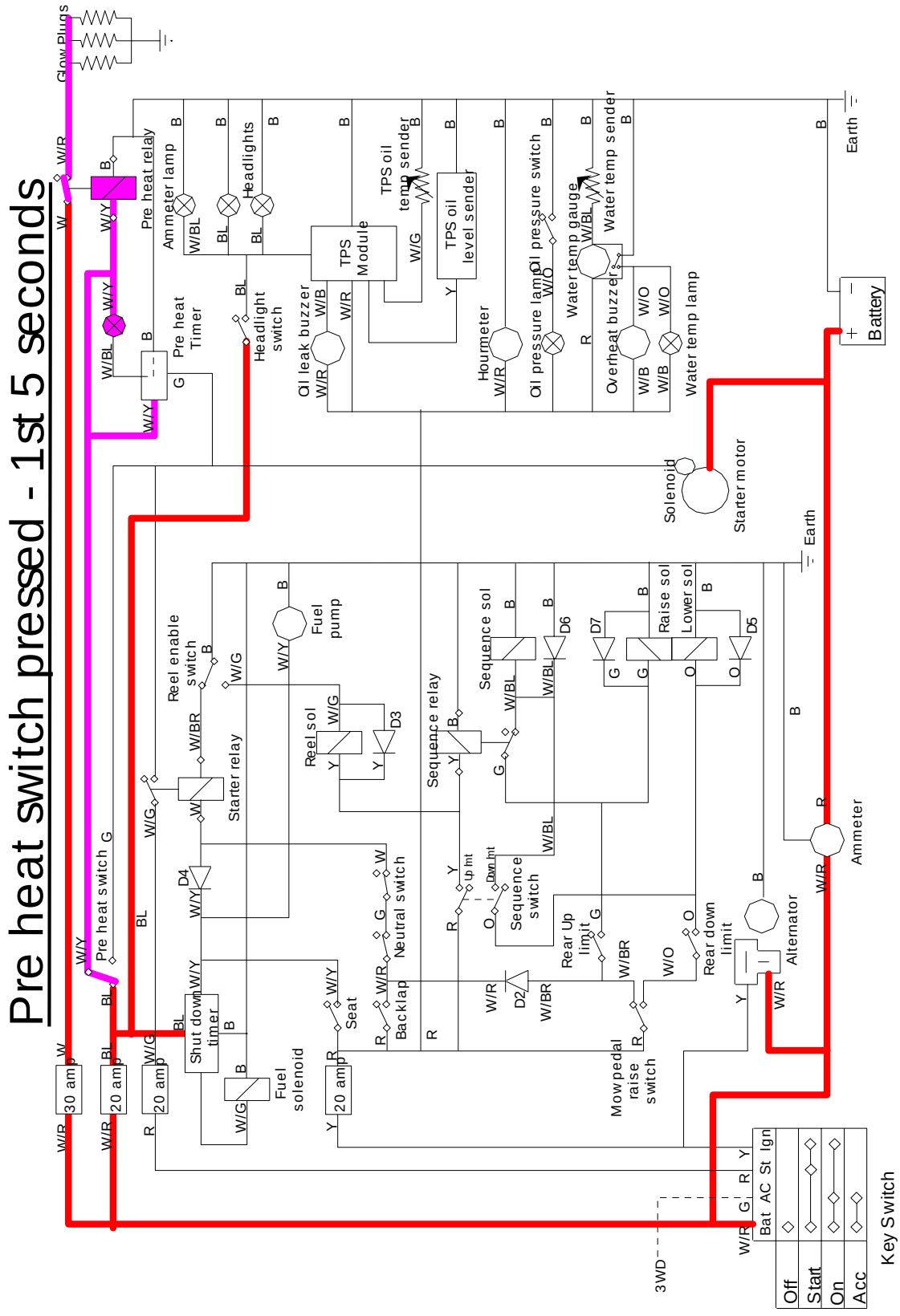

3WD Circuit
(Reverse)
Pressure
Return
Case
Charge
Suction
Lift Cylinder (Right)
Lift Cylinder (Centre)
Steering Cylinder
Lift Cylinder (Left)
Soft Drop Valve
Flow Divider Combiner Valve
Top Valve
Bottom Valve
Sequence Delay Valves Lift/Lower
Lift Valve
Relief Valve
100 bar
1400 psi
Steering Valve
Reel Drive Valve
Relief Valve
125 bar
1800 psi
Transmission Pump
48.45 l/min
12.8 gal/min US
(Engine 3400 rpm)
(Idle 1400 rpm)
Charge Pump
18.3 l/min
4.9 gal/min US
Charge Relief Valve
10-15 bar
150-210 psi
Implement Relief Valve
55 bar
800 psi
Cutting Pump
26.27 l/min
6.9 gal/min US
Oil Cooler
Backlap Valve
Filter
25 µm
Filter
25 µm
Reservoir
Reel Drive Motors
2000 - 2100 rpm
TRW Me10
RH
LH
3WD
Transport: 300 rpm
Mowing: 110-140 rpm
Reverse: 140-170 rpm
(actual measurements)
1 mm
(0.04")
0.5 mm
(0.02")
Flushing Valve
.... l/min
.... gal/min US

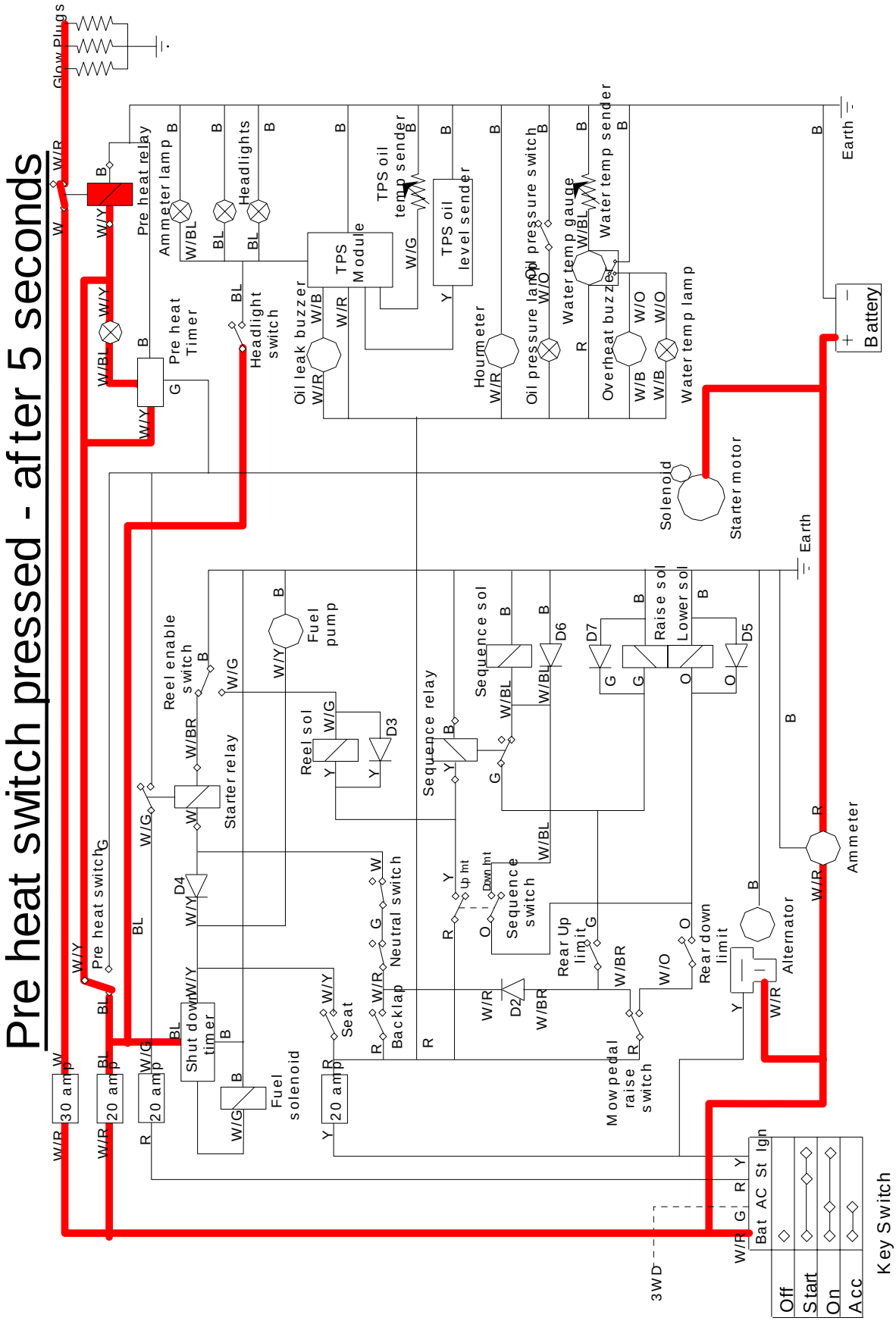
SECTION 10
ELECTRICAL SYSTEM
US (WD) Series

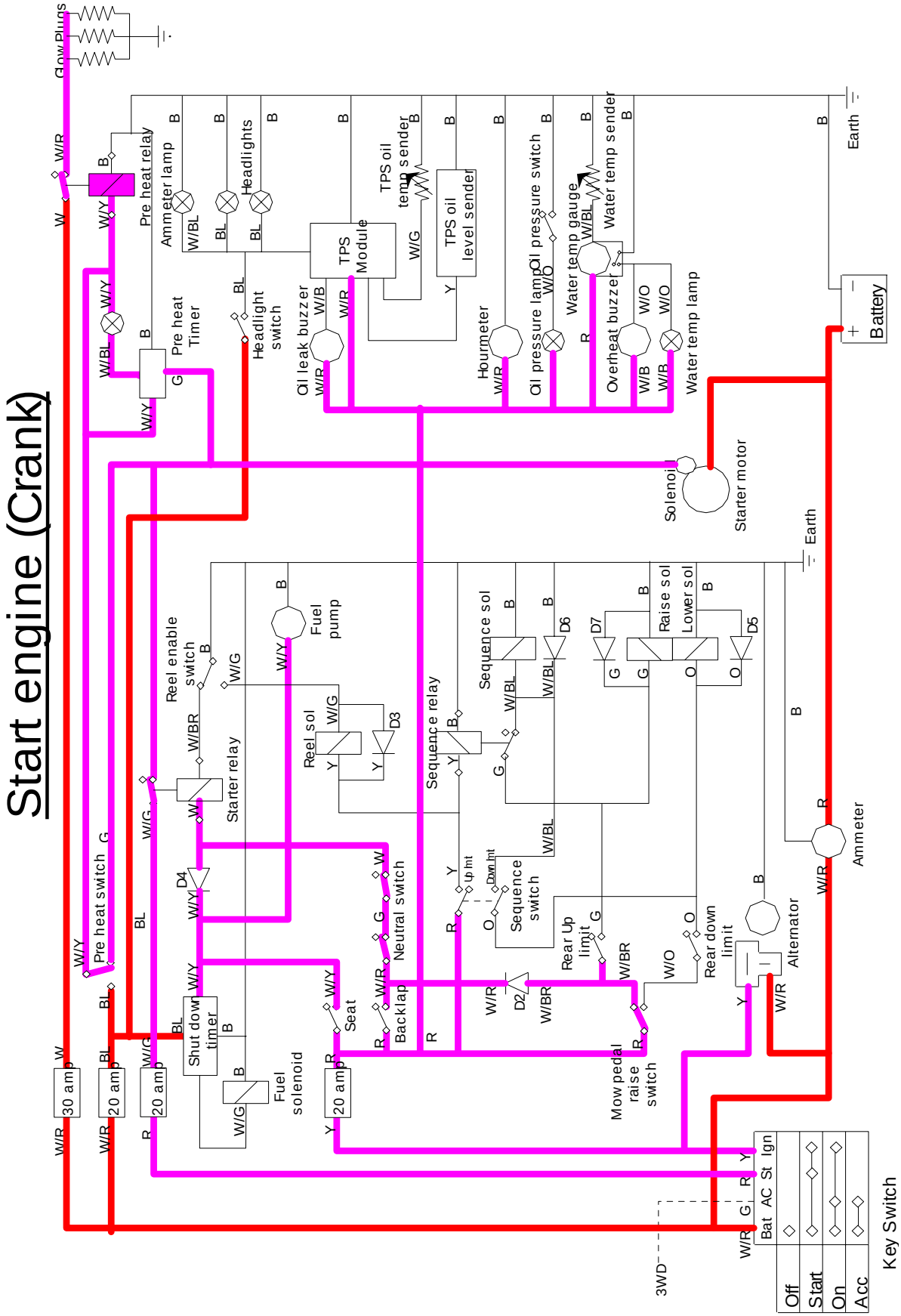
Tools required:	Digital Multimeter Jumper wires 60 amp Ammeter Battery Tester
Cleaning Materials:	Baking soda and water Water repellent (WD40)
Other service items:	Electrical insulation compound


Greensplex II - Electric circuit
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS Module
TPS oil level sender
Oil pressure switch
Water temp gauge
Water temp sender
Earth
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Starter relay
Reel sol
Sequence relay
Sequence sol
Raise sol
Lower sol
Pre heat switch
Sequence switch
Neutral switch
Backlap
Seat
Shut down timer
Fuel solenoid
Rear Up limit
Rear down limit
Mow pedal raise switch
Alternator
Ammeter
30 amp
20 amp
20 amp
20 amp
Up mt
Down mt
3WD
Key Switch
Bat AC St Ign
Off
Start
On
Acc

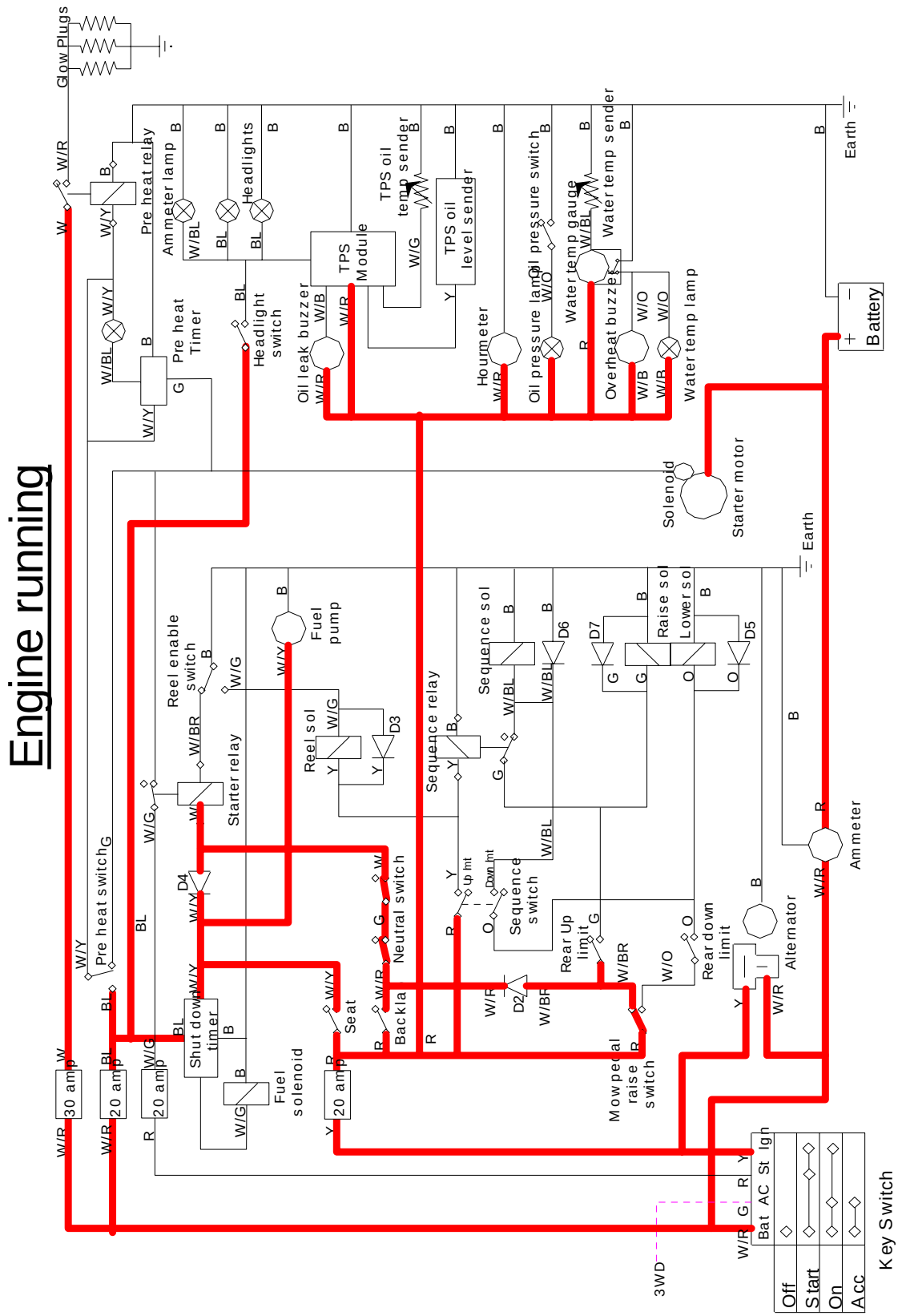

Off position
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS Module
TPS oil level sender
Oil pressure switch
Water temp gauge
Water temp sender
Earth
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Starter relay
Reel sol
Sequence relay
Sequence sol
Raise sol
Lower sol
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Backlap
Neutral switch
Sequence switch
Rear Up limit
Rear down limit
Mow pedal raise switch
Alternator
Ammeter
30 amp
20 amp
20 amp
20 amp
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc
3WD

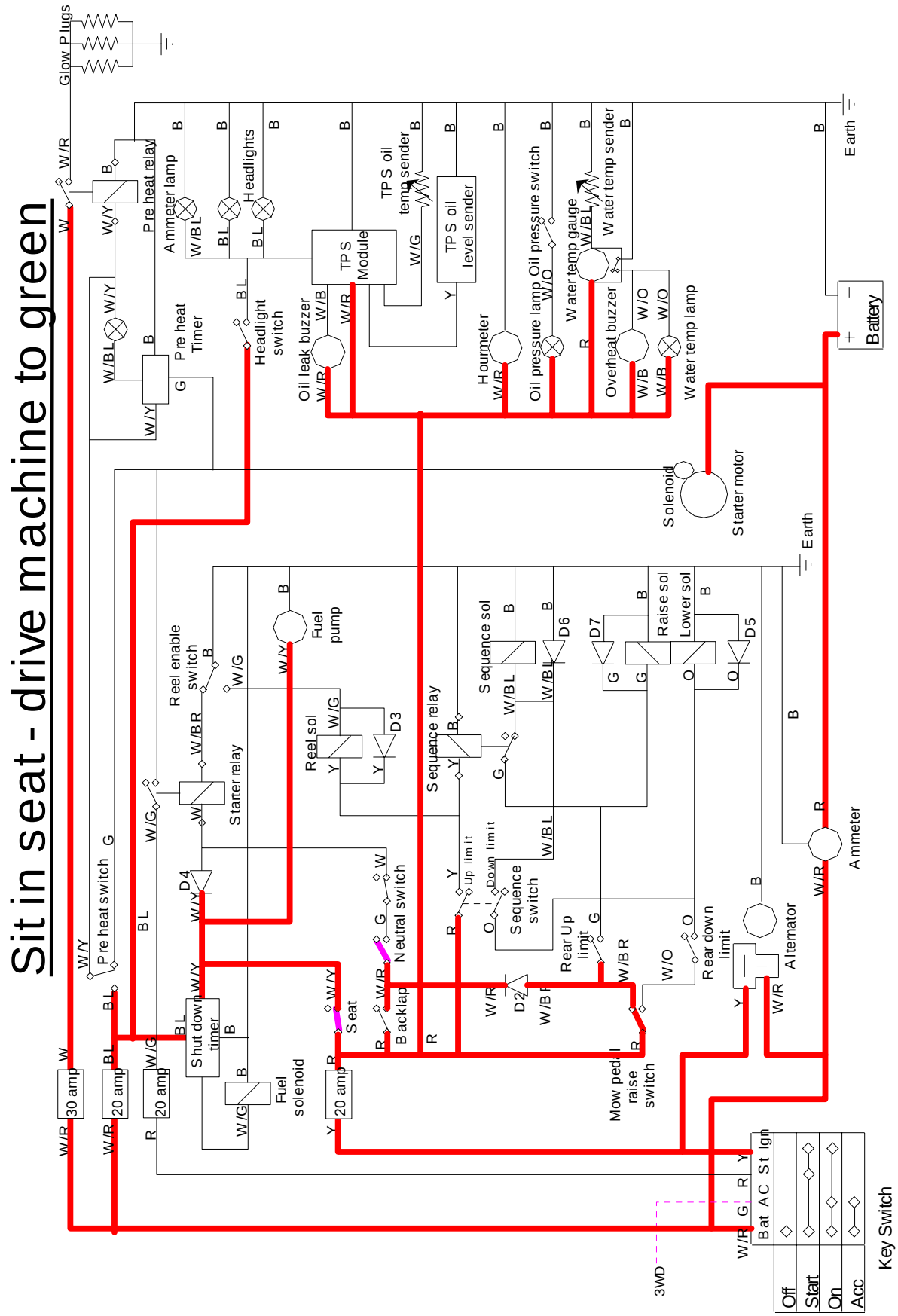

Pre heat switch pressed - 1st 5 seconds
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS Module
TPS oil level sender
Oil pressure switch
Water temp gauge
Water temp sender
Earth
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Sequence sol
Raise sol
Lower sol
Starter relay
Reel sol
Sequence relay
Earth
Pre heat switch
Shut down timer
Neutral switch
Sequence switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Backlap
Seat
Fuel solenoid
Mow pedal raise switch
30 amp
20 amp
20 amp
20 amp
3WD
Key Switch
Bat AC St Ign
Off
Start
On
Acc

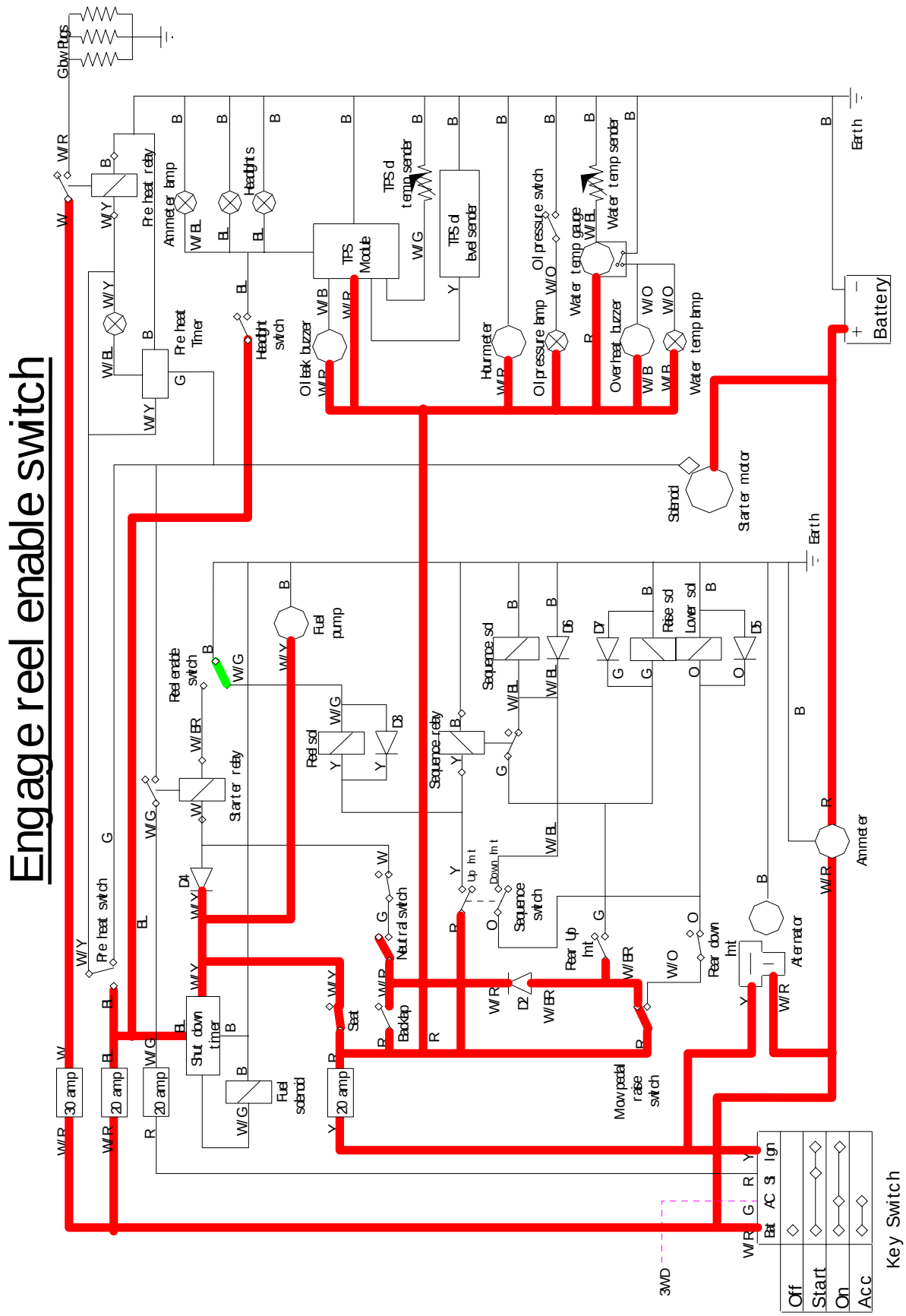

Pre heat switch pressed - after 5 seconds
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS oil level sender
Oil pressure switch
Water temp gauge
Water temp sender
Earth
Pre heat Timer
Headlight switch
Oil leak buzzer
TPS Module
Houurmeter
Oil pressure lamp
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Reel sol
Starter relay
Sequence sol
Sequence relay
Raise sol
Lower sol
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Backlap
Neutral switch
Sequence switch
Rear Up limit
Rear down limit
Mow pedal raise switch
Alternator
Ammeter
30 amp
20 amp
20 amp
20 amp
Up hnt
Down hnt
3WD
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc

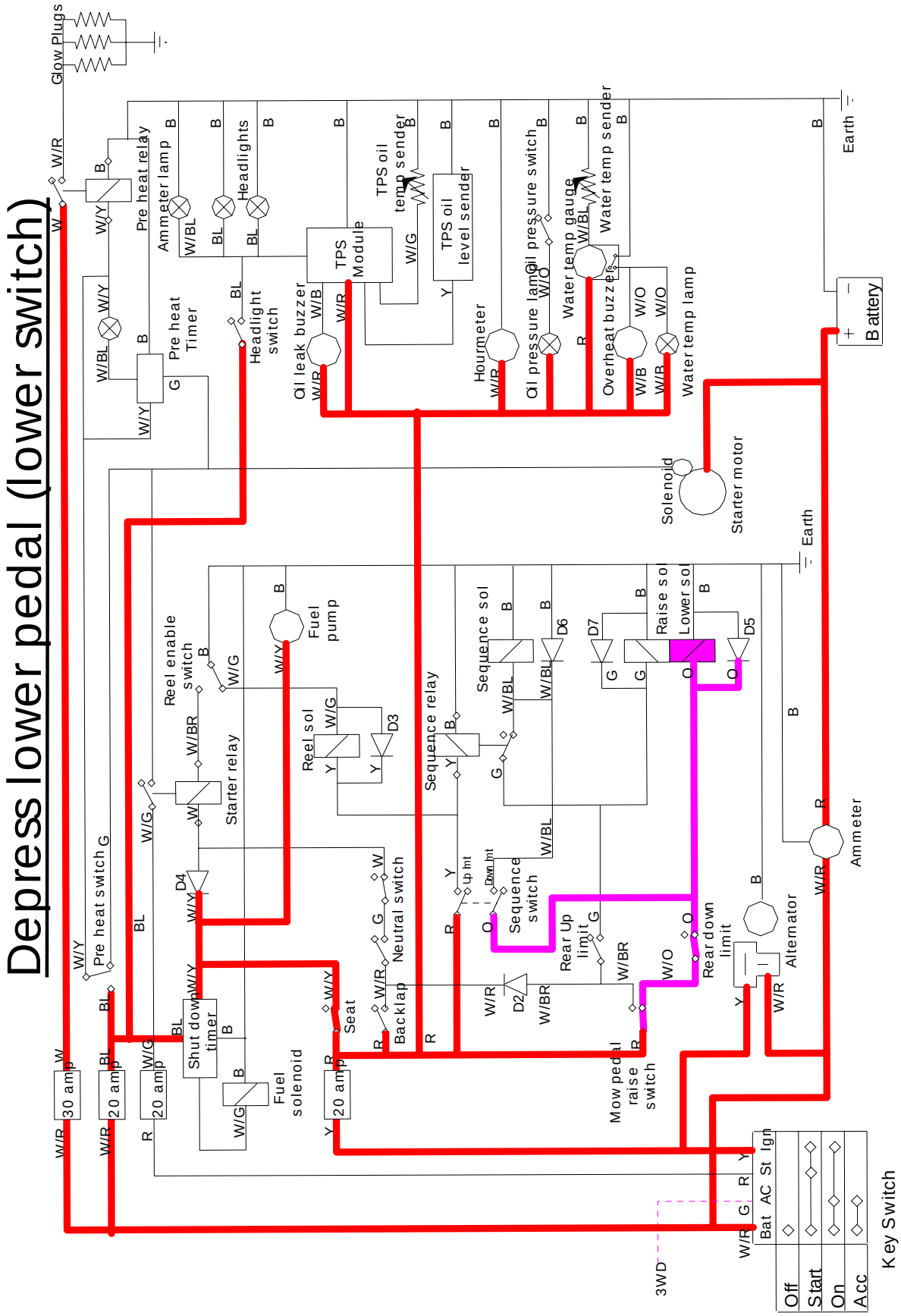

Start engine (Crank)
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS oil level sender
Oil pressure switch
Water temp gauge
Water temp sender
Earth
TPS Module
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Sequence sol
Raise sol
Lower sol
Reel sol
Sequence relay
Starter relay
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Backlap
Neutral switch
Sequence switch
Rear Up limit
Rear down limit
Mow pedal raise switch
Alternator
Ammeter
30 amp
20 amp
20 amp
20 amp
3WD
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc

10C

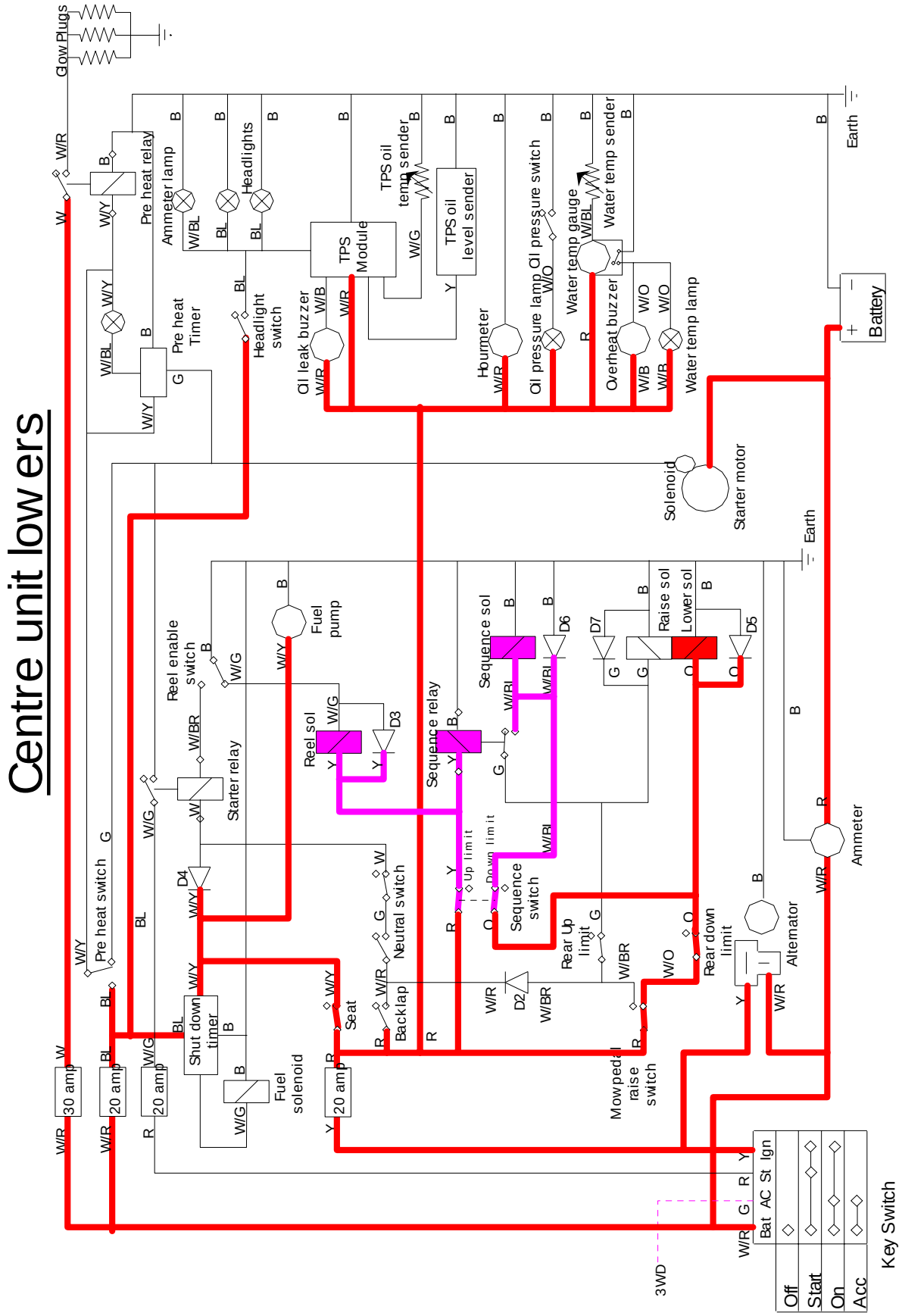

Engine running
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS Module
TPS oil level sender
Oil pressure switch
Water temp gauge
Water temp sender
Earth
Battery
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Overheat buzzer
Water temp lamp
Solenoid
Starter motor
Reel enable switch
Fuel pump
Reel sol
Starter relay
Sequence relay
Sequence sol
Raise sol
Lower sol
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Neutral switch
Backla
Sequence switch
Up lmt
Down lmt
Rear Up limit
Rear down limit
Mowpedal raise switch
Alternator
Ammeter
30 amp
20 amp
20 amp
20 amp
D1
D2
D3
D4
D5
D6
D7
3WD
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc

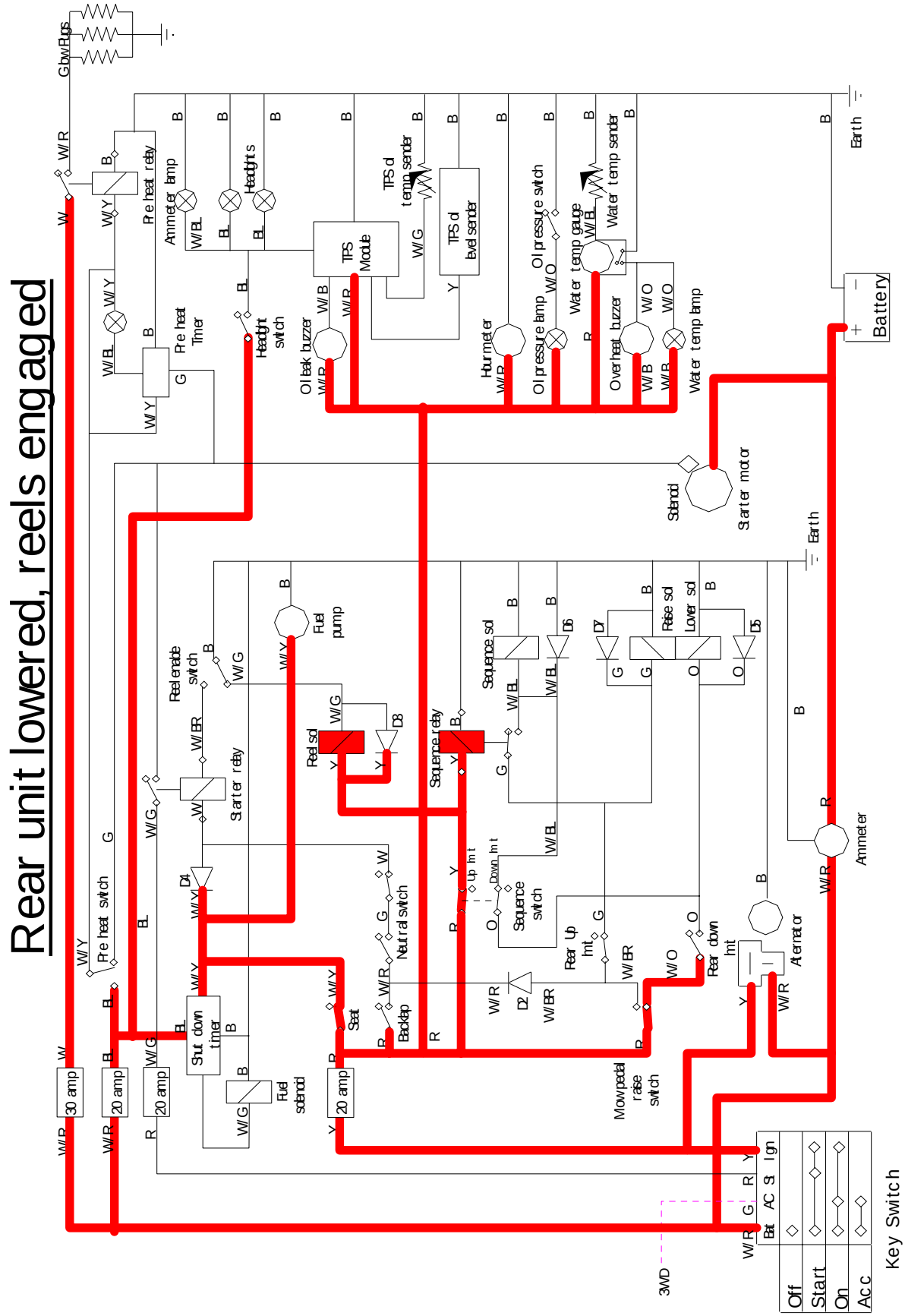

Sit in seat - drive machine to green
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
Oil pressure switch
Water temp sender
Earth
Pre heat Timer
Headlight switch
TPS Module
TPS oil level sender
Oil pressure lamp
Water temp gauge
Battery
Oil leak buzzer
Hourmeter
Overheat buzzer
Water temp lamp
Solenoid
Starter motor
Earth
Reel enable switch
Fuel pump
Sequence sol
Raise sol
Lower sol
Reel sol
Sequence relay
Starter relay
Pre heat switch
Up limit
Down limit
Sequence switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Shut down timer
Neutral switch
Seat
Backlap
Fuel solenoid
Mow pedal raise switch
3WD
Key Switch
Bat AC St Ign
Off
Start
On
Acc
30 amp
20 amp
20 amp
20 amp

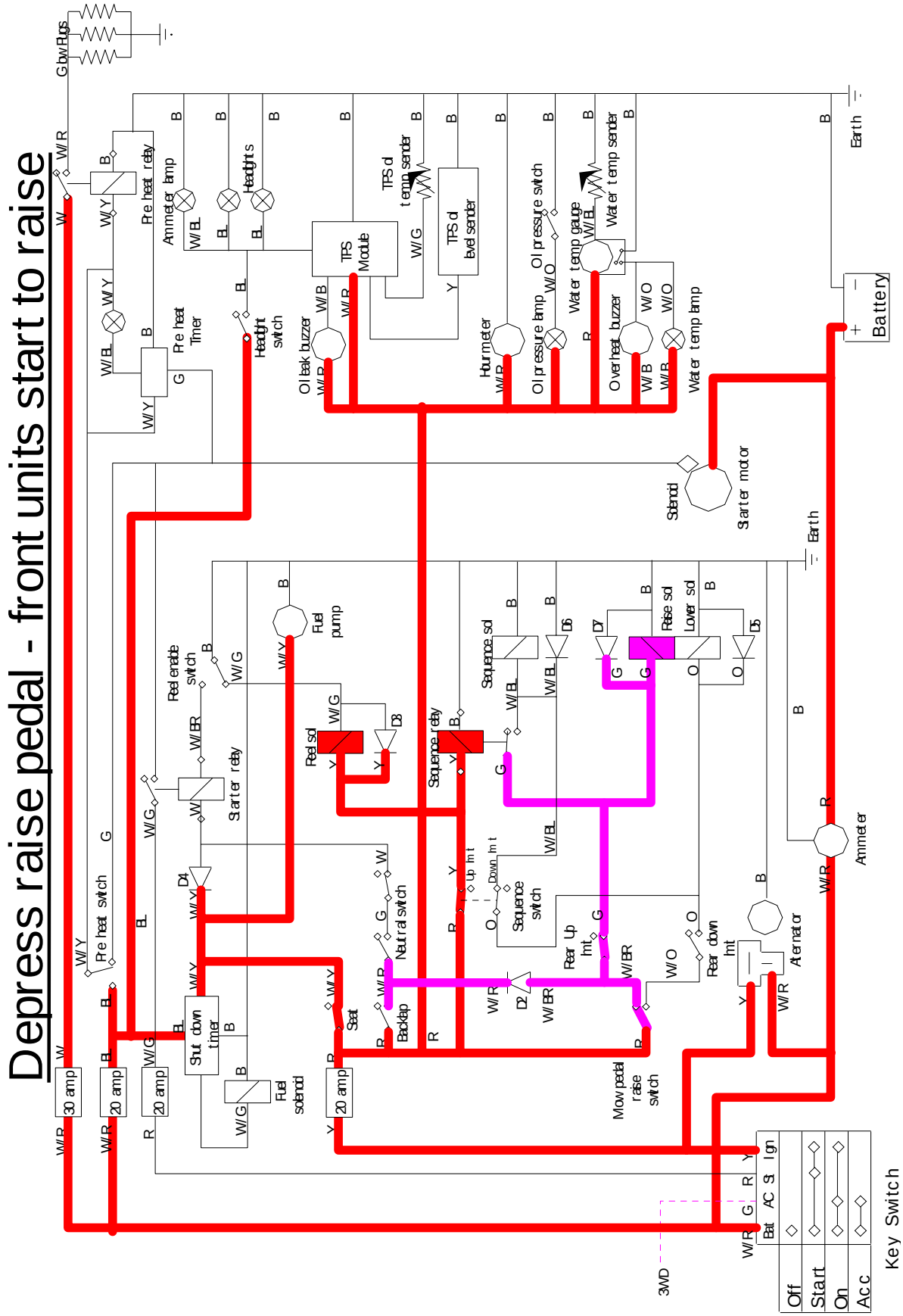

Engage reel enable switch
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS d temp sender
TPS d level sender
Oil pressure switch
Water temp sender
Earth
Battery
TPS Module
Oil pressure lamp
Water temp gauge
Hourmeter
Overheat buzzer
Water temp lamp
Oil leak buzzer
Pre heat Timer
Headlight switch
Solenoid
Starter motor
Reel enable switch
Fuel pump
Reel sol
Sequence sol
Raise sol
Lower sol
Starter relay
Sequence relay
Pre heat switch
Neutral switch
Sequence switch
Rear up lmt
Rear down lmt
Alternator
Ammeter
Shut down timer
Fuel solenoid
Seat
Backup
Mow pedal raise switch
30 amp
20 amp
20 amp
20 amp
3WD
Key Switch
Bat
ACS
Ign
Off
Start
On
Acc

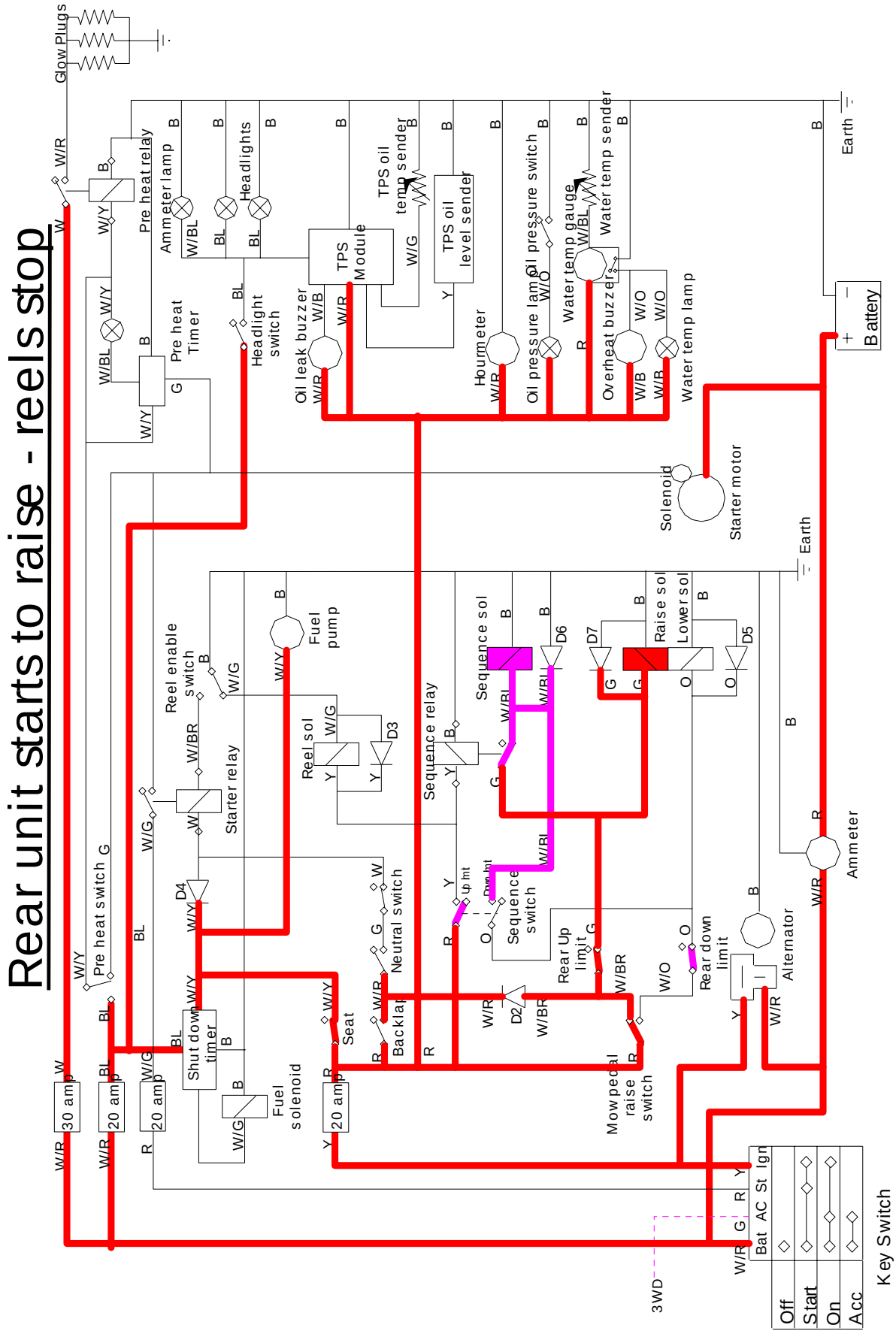

Depress lower pedal (lower switch)
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS Module
TPS oil temp sender
TPS oil level sender
Oil pressure switch
Water temp sender
Earth
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
B attery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Sequence sol
Raise sol
Lower sol
Starter relay
Reel sol
Sequence relay
Pre heat switch
Neutral switch
Sequence switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Shut down timer
Fuel solenoid
Seat
Backlap
Mow pedal raise switch
30 amp
20 amp
20 amp
20 amp
Bat AC St Ign
Off
Start
On
Acc
Key Switch
3WD

10C

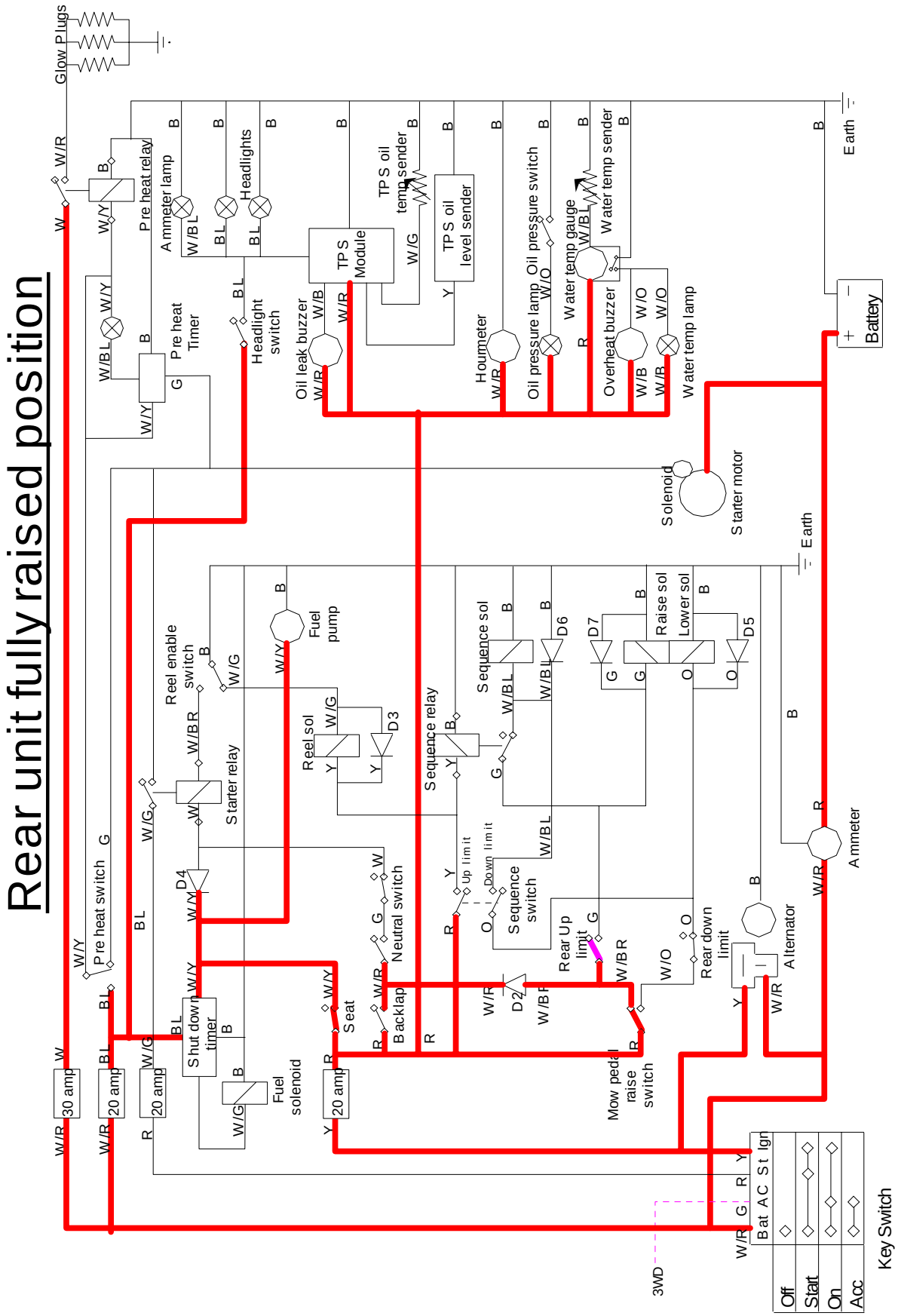

Centre unit lowers
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS Module
TPS oil level sender
Oil pressure switch
Water temp sender
Earth
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Sequence sol
Raise sol
Lower sol
Reel sol
Sequence relay
Starter relay
Up limit
Down limit
Sequence switch
Pre heat switch
Neutral switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Shut down timer
Seat
Backlap
Fuel solenoid
Mow pedal raise switch
30 amp
20 amp
20 amp
20 amp
3WD
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc

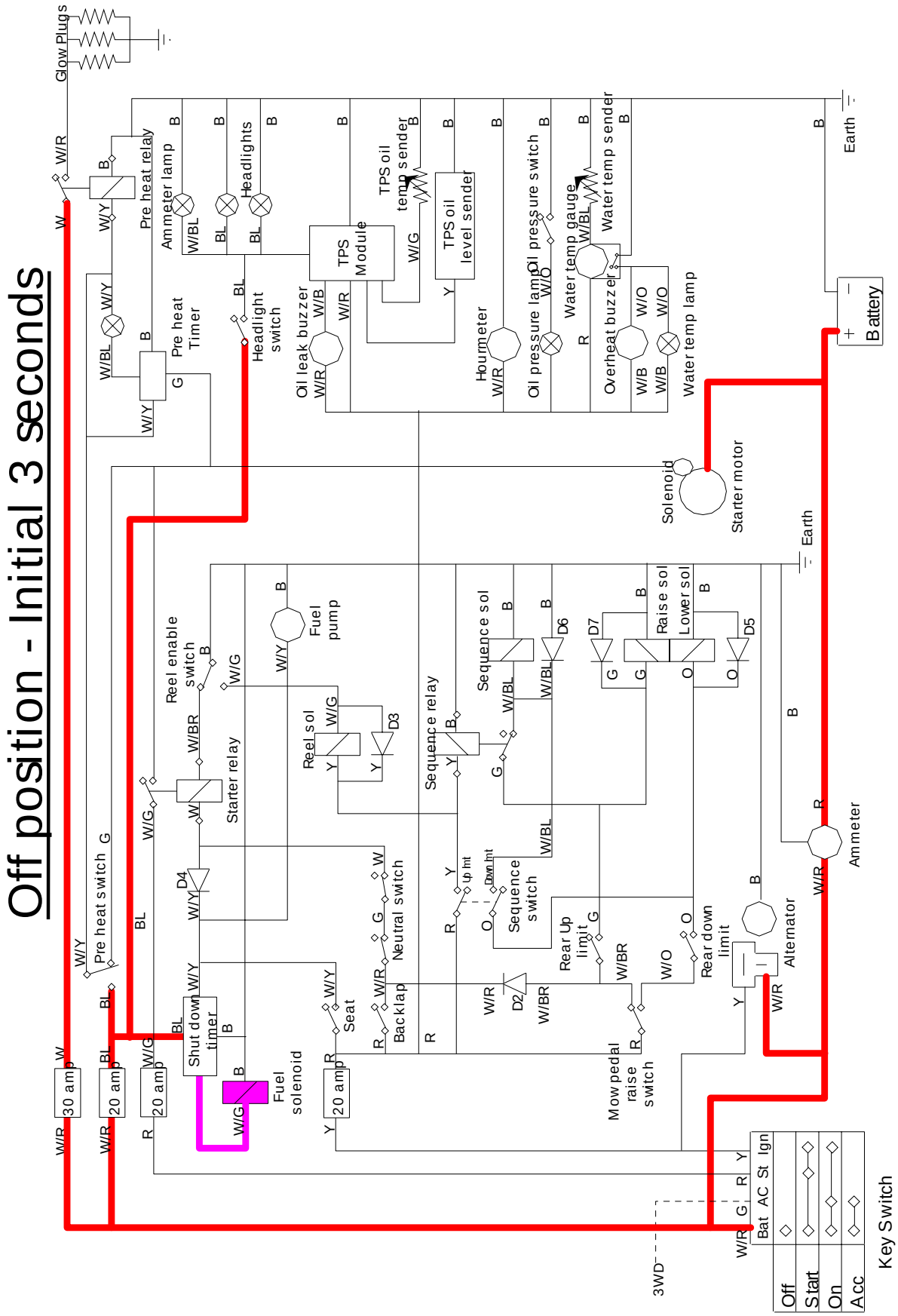

Rear unit lowered, reels engaged
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS Module
TPS throttle sender
TPS fuel sender
Oil pressure switch
Water temp sender
Earth
Battery
Pre heat Timer
Headlight switch
Oil back buzzer
Hour meter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
Solenoid
Starter motor
Fuel pump
Reel enable switch
Reel sol
Sequence sol
Raise sol
Lower sol
Starter relay
Sequence relay
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Backup
Neutral switch
Sequence switch
Rear up lmt
Rear down lmt
Mow pedal raise switch
Alternator
Ammeter
20 amp
30 amp
Key Switch
Off
Start
On
Acc
3WD


Depress raise pedal - front units start to raise
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS d temp sender
TPS d level sender
TPS Module
Oil pressure switch
Water temp sender
Oil bak buzzer
Hourmeter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
Pre heat Timer
Headlight switch
Earth
Battery
Solenoid
Starter motor
Reel endstop switch
Fuel pump
Reel sol
Sequence sol
Raise sol
Lower sol
Sequence relay
Starter relay
Pre heat switch
Up limit
Down limit
Sequence switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Shut down timer
Fuel solenoid
Seat
Backup
Neutral switch
Mow pedal raise switch
20 amp
30 amp
3WD
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc


Rear unit starts to raise - reels stop
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS oil level sender
Oil pressure switch
Water temp sender
Earth
TPS Module
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Sequence sol
Raise sol
Lower sol
Reel sol
Sequence relay
Starter relay
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Neutral switch
Backlap
Sequence switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Mow pedal raise switch
3WD
Key Switch
Off
Start
On
Acc
Bat
AC
St
Ign
30 amp
20 amp
20 amp
20 amp
D1
D2
D3
D4
D5
D6
D7

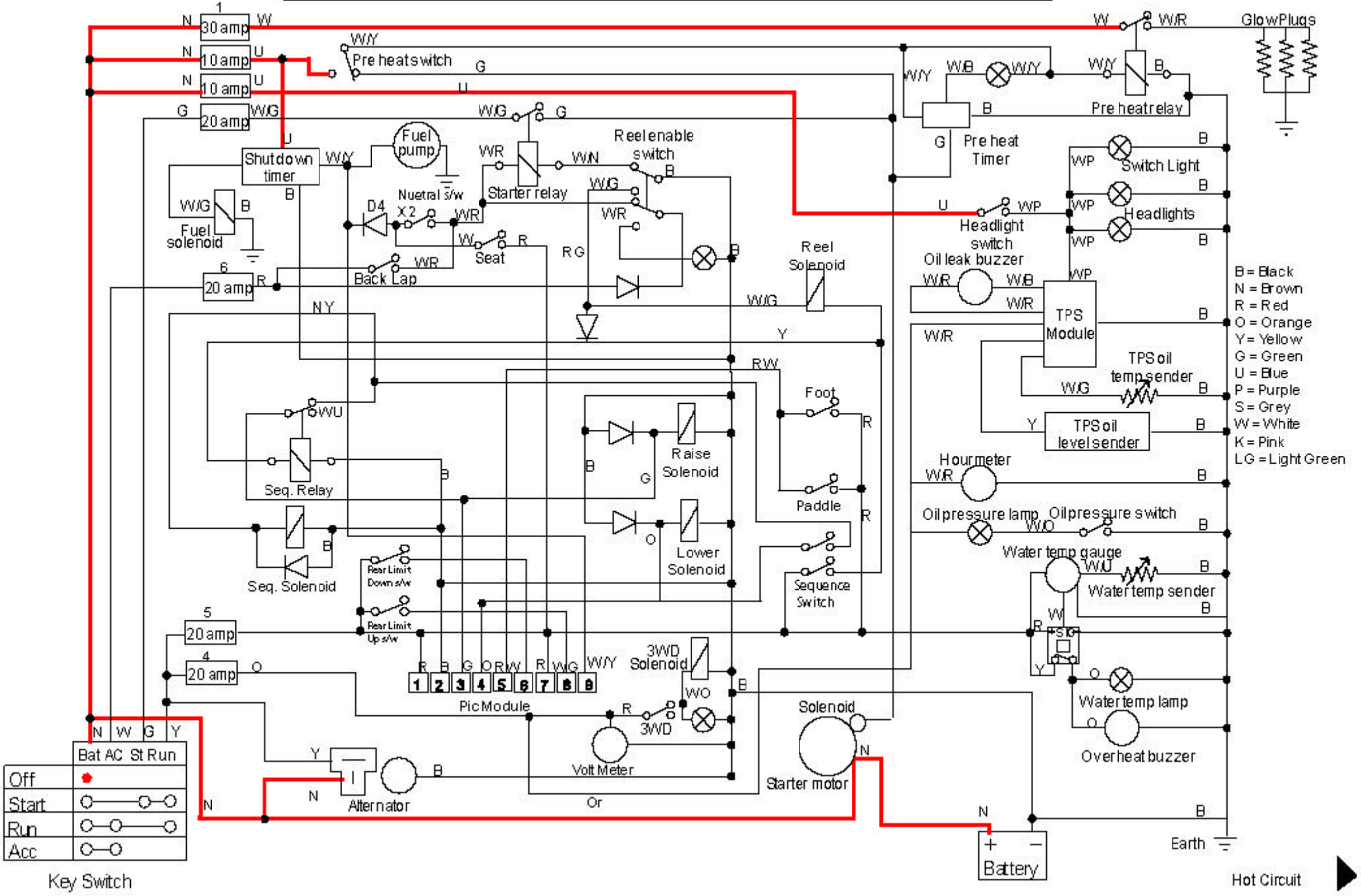
10C


Rear unit fully raised position
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS oil level sender
Oil pressure switch
Water temp sender
Earth
TPS Module
Pre heat Timer
Headlight switch
Oil leak buzzer
Hourmeter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Earth
Reel enable switch
Fuel pump
Sequence sol
D6
D7
Raise sol
Lower sol
D5
Reel sol
D3
Sequence relay
Starter relay
D4
Up limit
Down limit
Sequence switch
Neutral switch
Rear Up limit
Rear down limit
Alternator
Ammeter
Shut down timer
Fuel solenoid
Seat
Backlap
D2
Mow pedal raise switch
Pre heat switch
30 amp
20 amp
20 amp
20 amp
3WD
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc

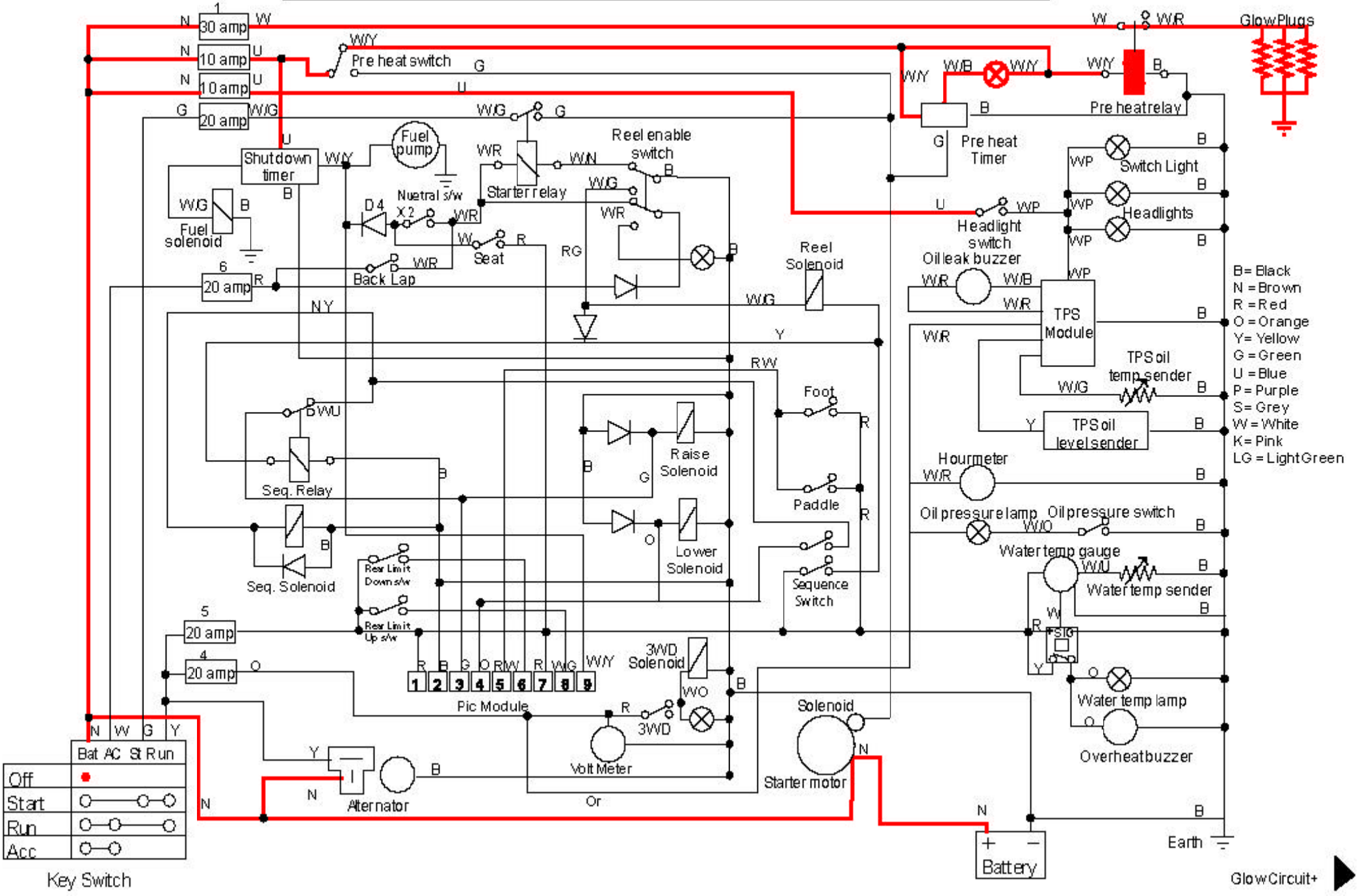

Off position - Initial 3 seconds
Glow Plugs
Pre heat relay
Ammeter lamp
Headlights
TPS oil temp sender
TPS oil level sender
Oil pressure switch
Water temp sender
Earth
Pre heat Timer
Headlight switch
TPS Module
Oil leak buzzer
Hourmeter
Oil pressure lamp
Water temp gauge
Overheat buzzer
Water temp lamp
Battery
Solenoid
Starter motor
Reel enable switch
Fuel pump
Reel sol
Sequence sol
Raise sol
Lower sol
Starter relay
Sequence relay
Pre heat switch
Shut down timer
Fuel solenoid
Seat
Backlap
Neutral switch
Sequence switch
Rear Up limit
Rear down limit
Mow pedal raise switch
Alternator
Ammeter
30 amp
20 amp
20 amp
20 amp
Key Switch
Bat
AC
St
Ign
Off
Start
On
Acc
3WD

SECTION 10
ELECTRICAL SYSTEM
WD Series with Paddle Control

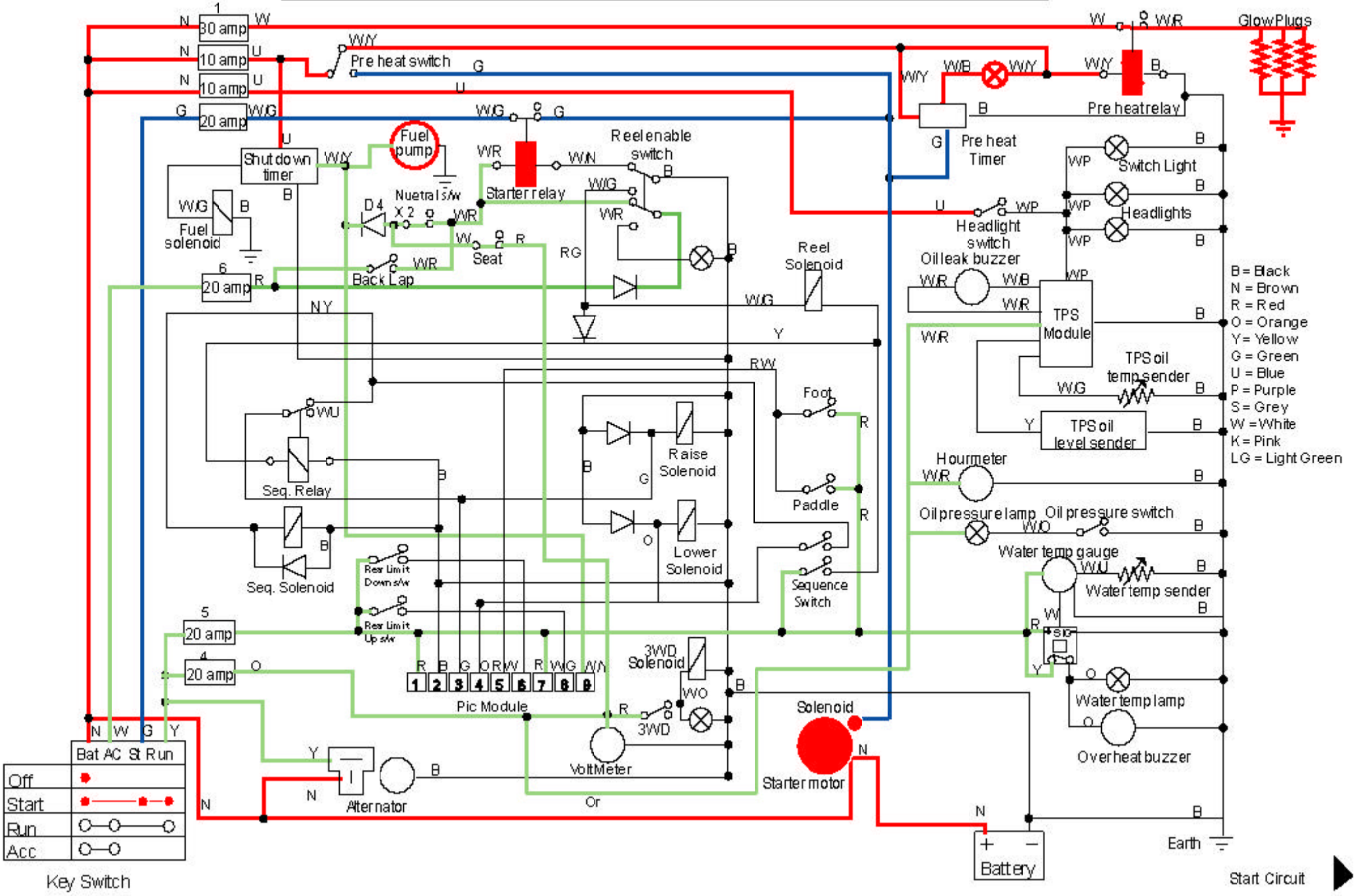
GreensPlex 2 Electric Circuit version 2 Pic module



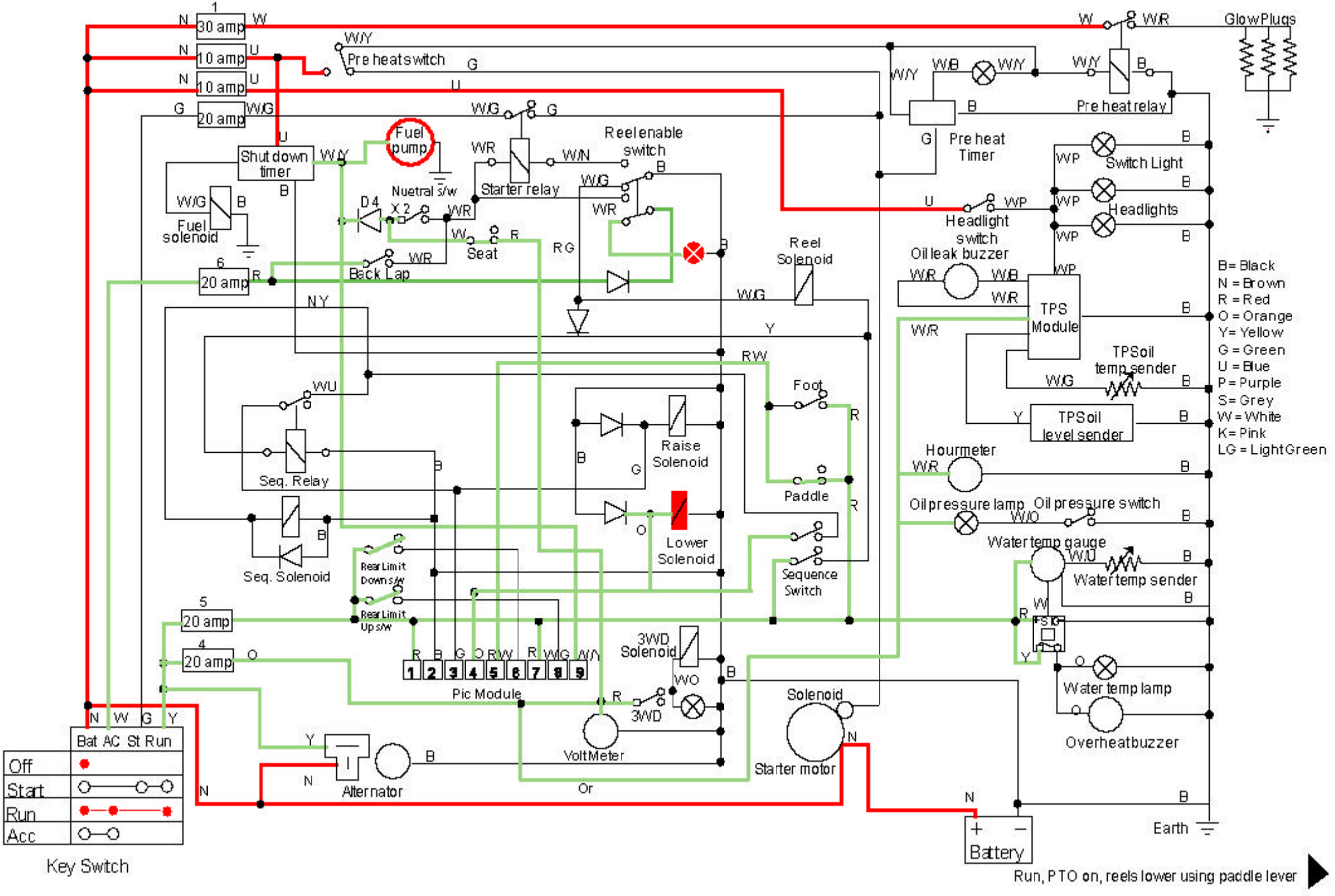
GreensPlex 2 Electric Circuit version 2 Pic module



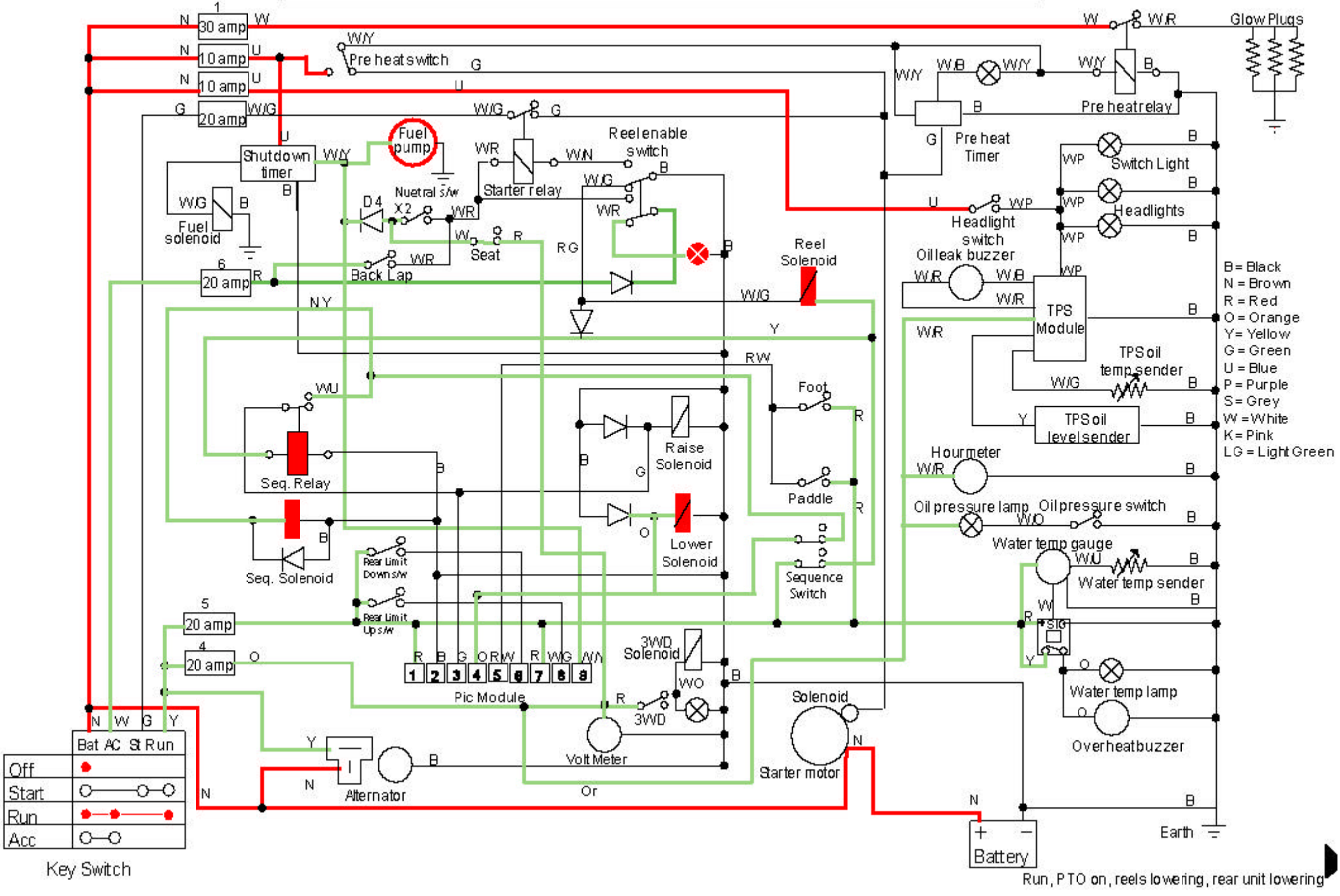
GreensPlex 2 Electric Circuit version 2 Pic module



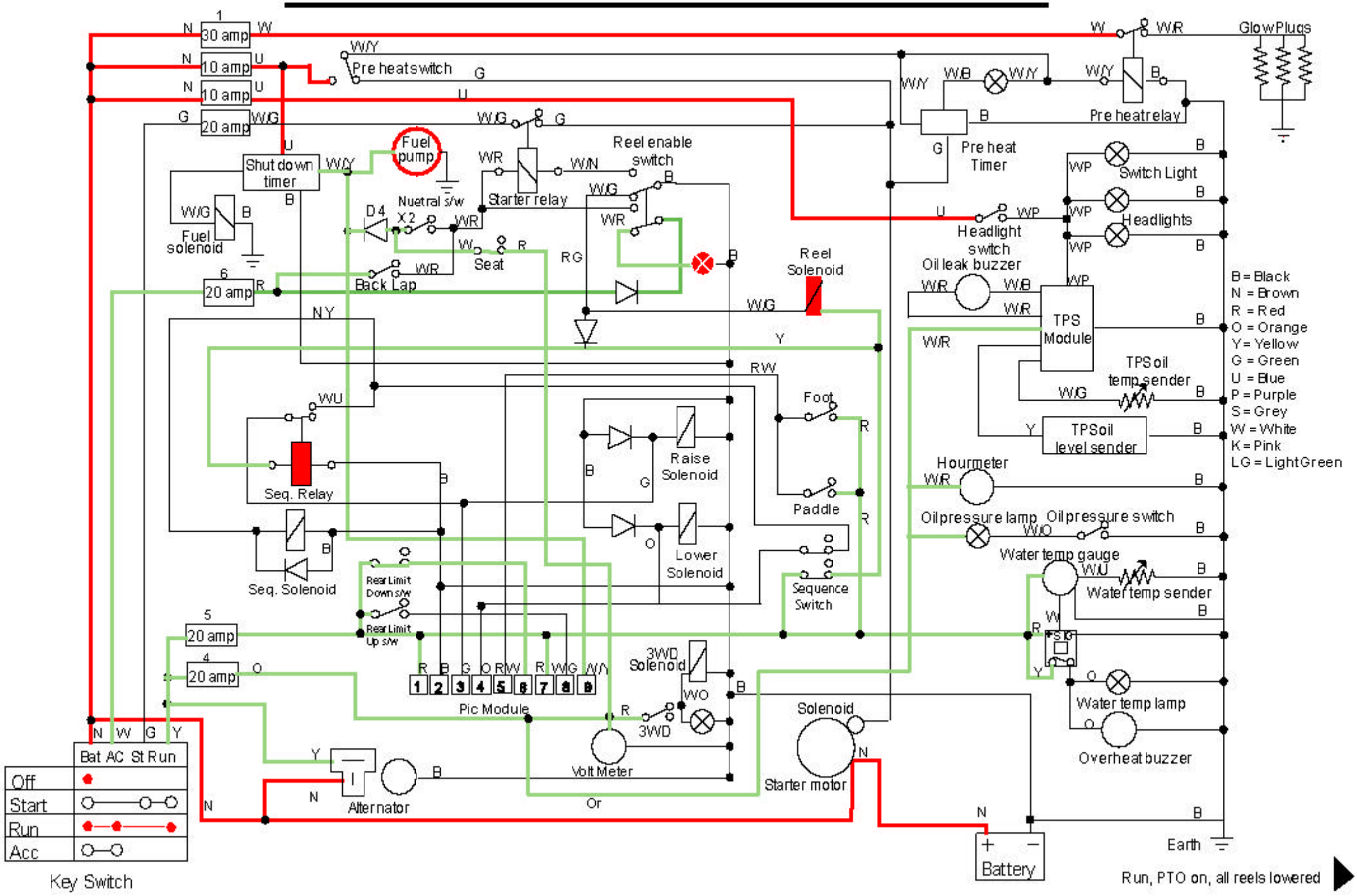
GreensPlex 2 Electric Circuit version 2 Pic module



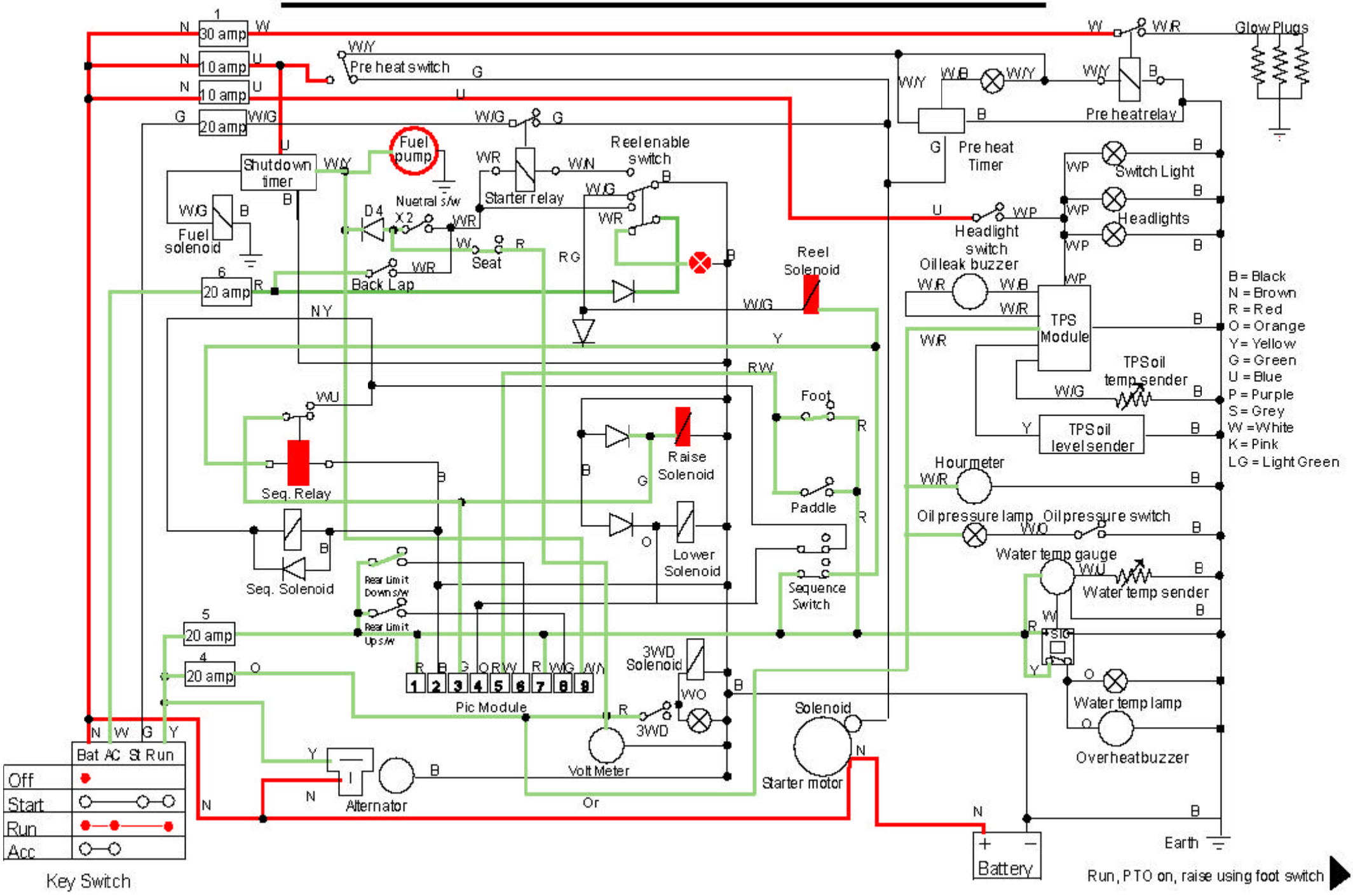
GreensPlex 2 Electric Circuit version 2 Pic module



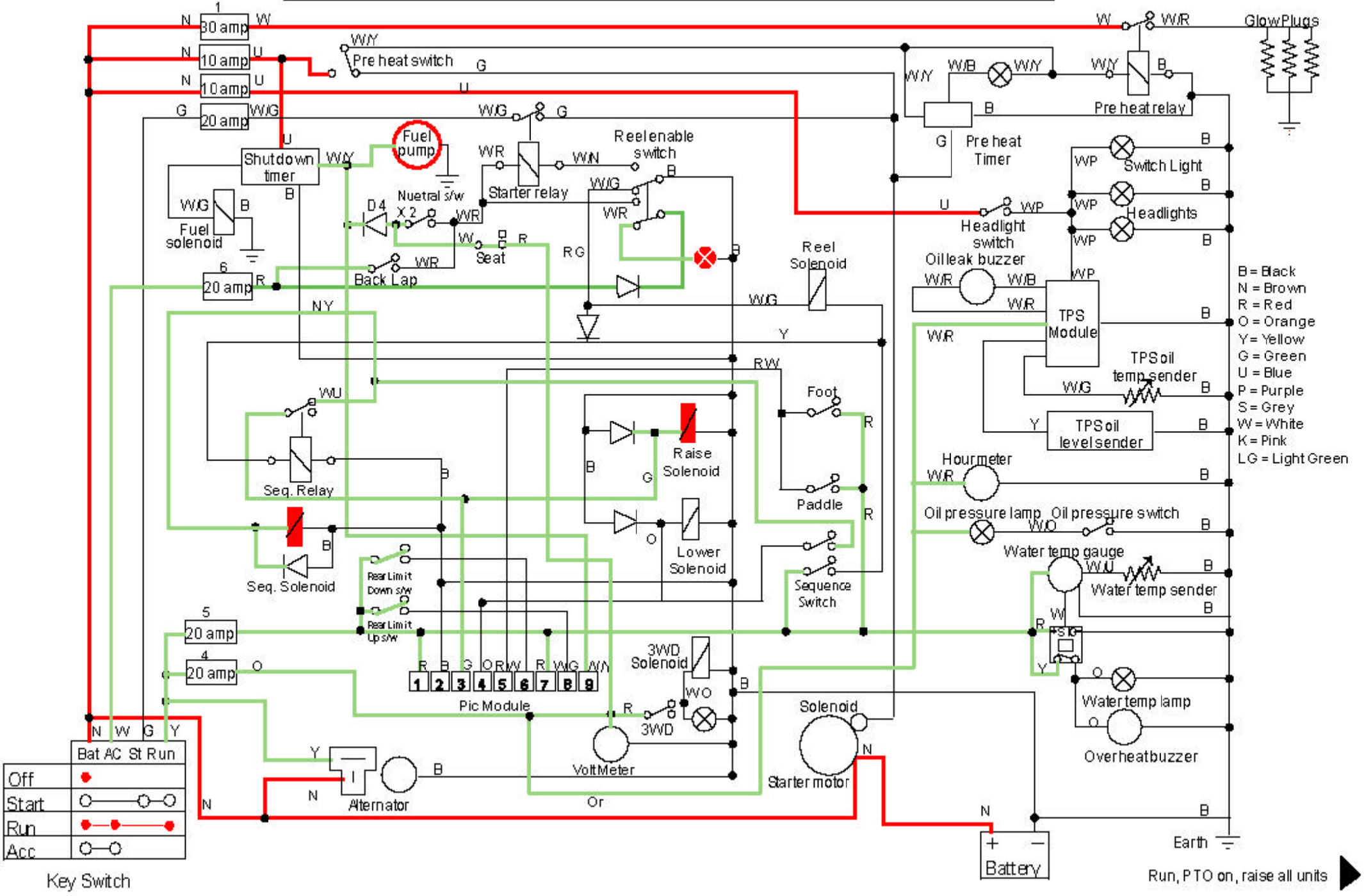
GreensPlex 2 Electric Circuit version 2 Pic module



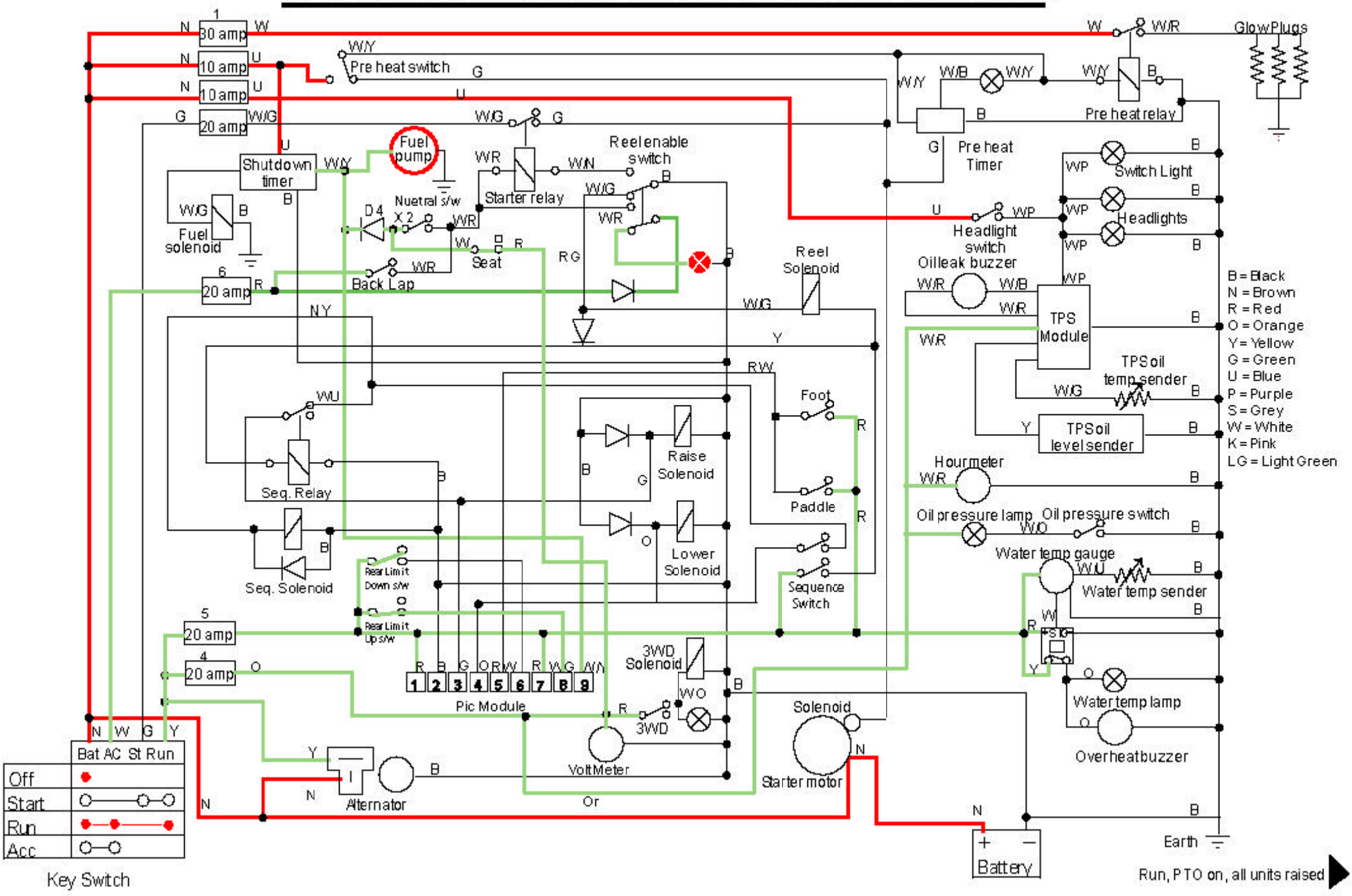
GreensPlex 2 Electric Circuit version 2 Pic module



GreensPlex 2 Electric Circuit version 2 Pic module

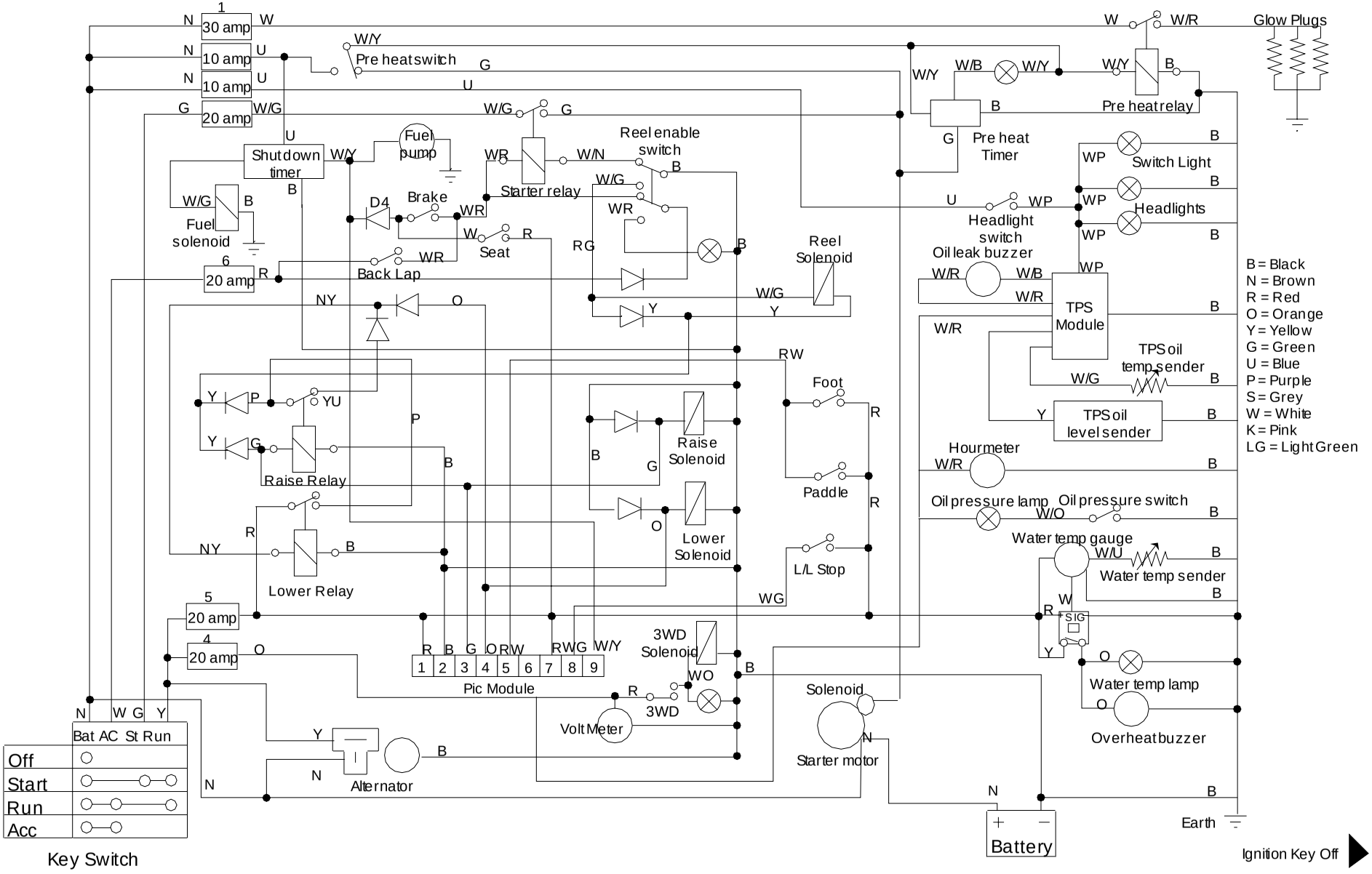


GreensPlex 2 Electric Circuit version 2 Pic module

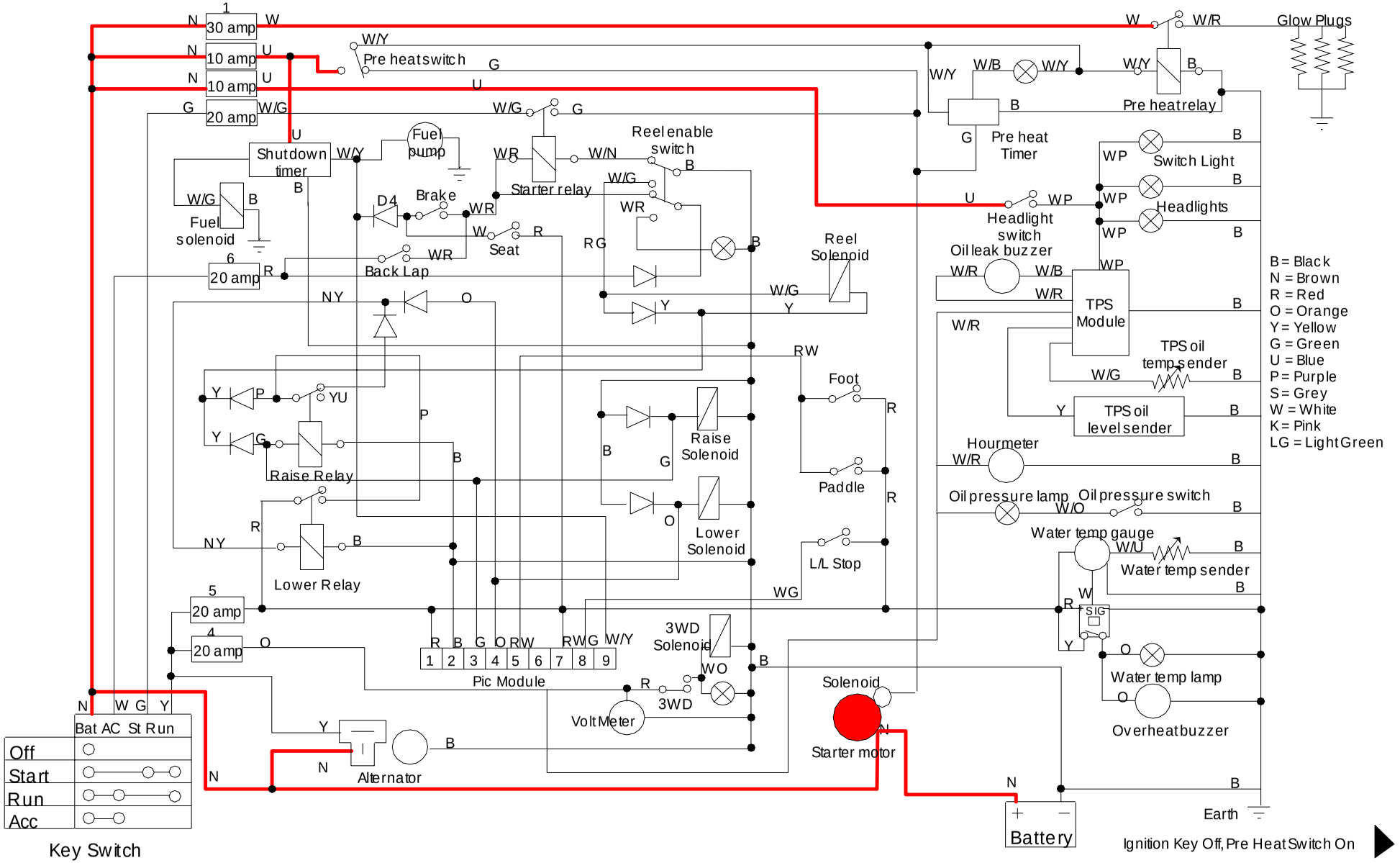


SECTION 10
ELECTRICAL SYSTEM
ZV Series with Paddle Control

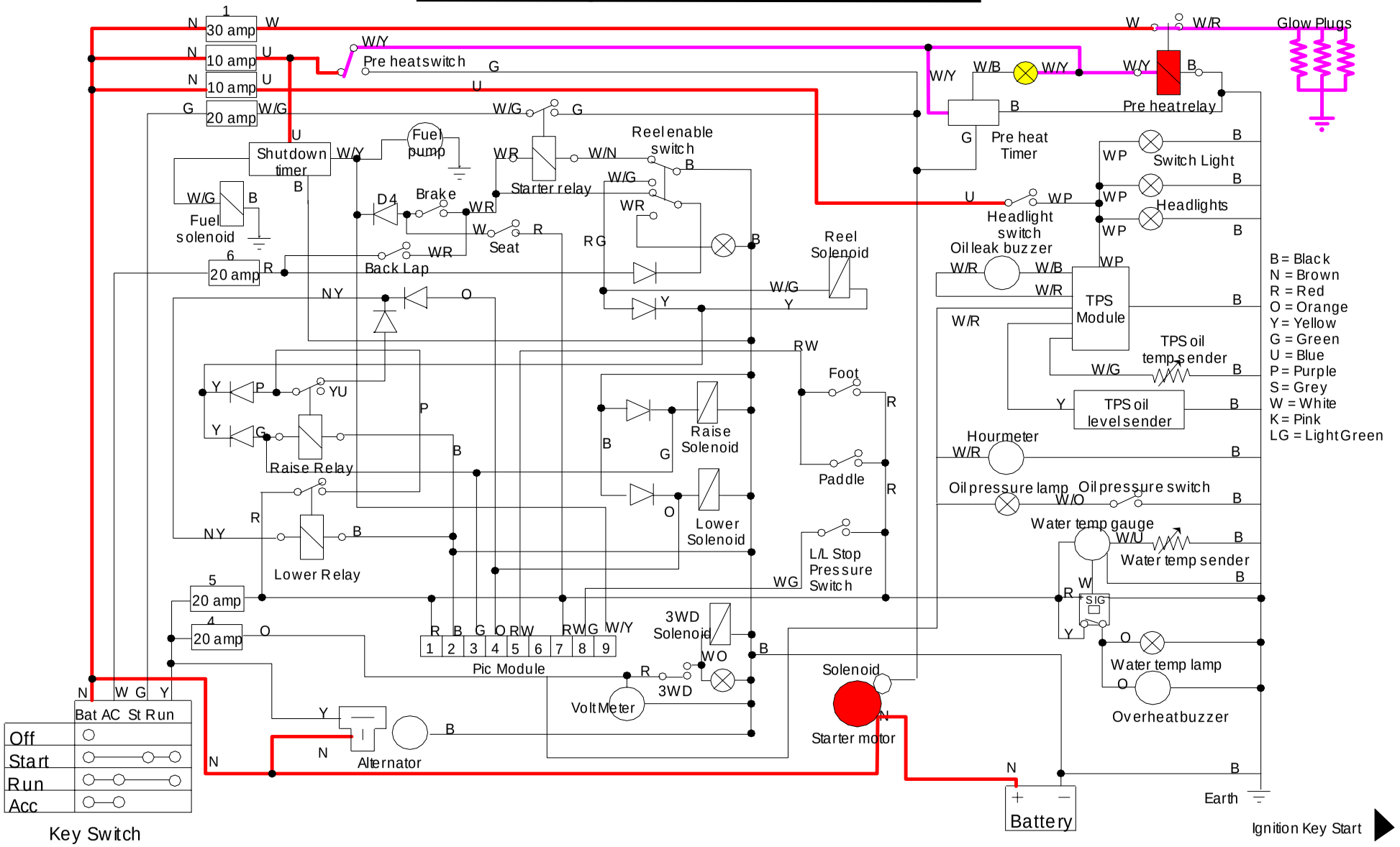
GreensPlex II Electric Circuit - V3 PIC Module



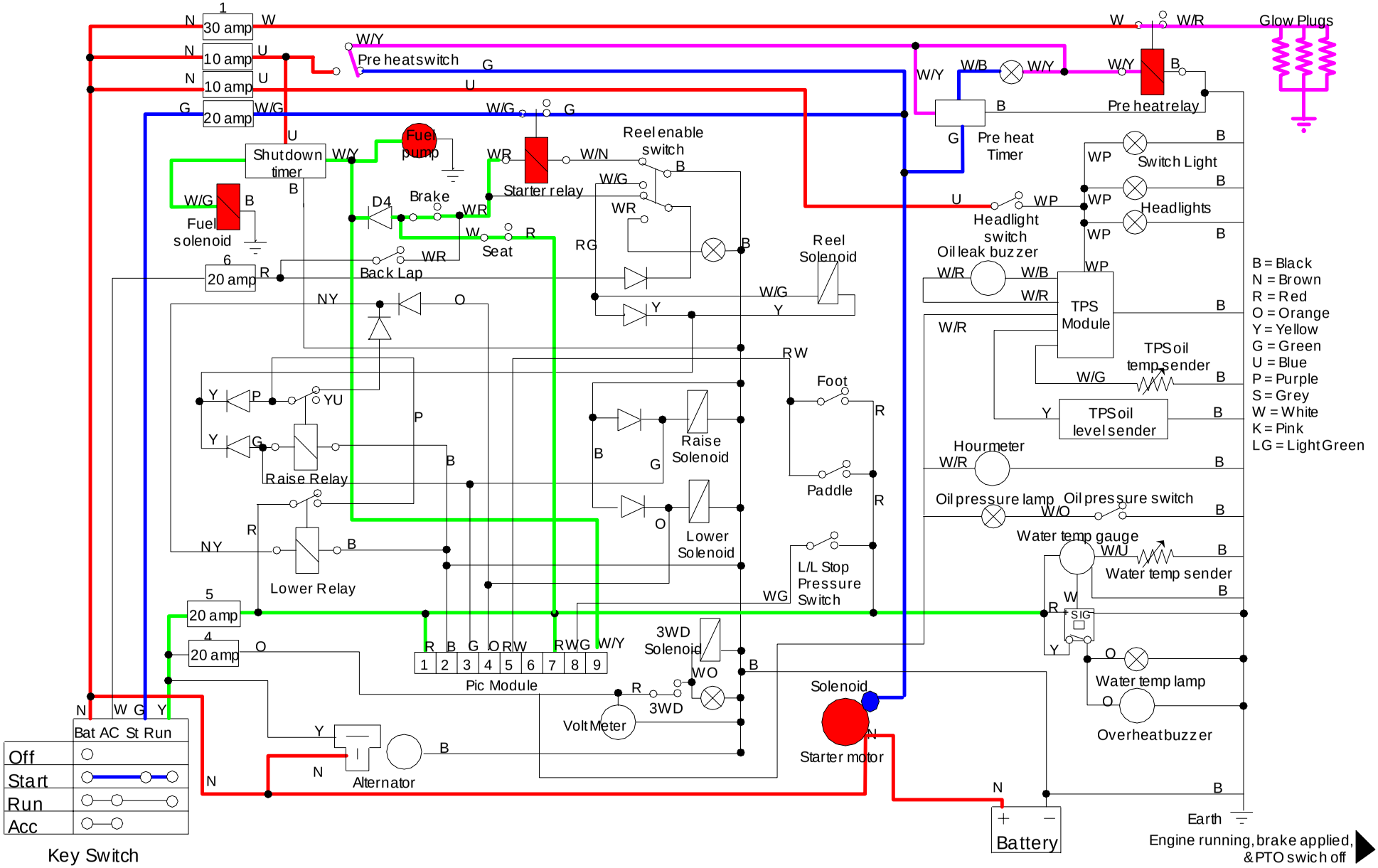
Ignition Key Off



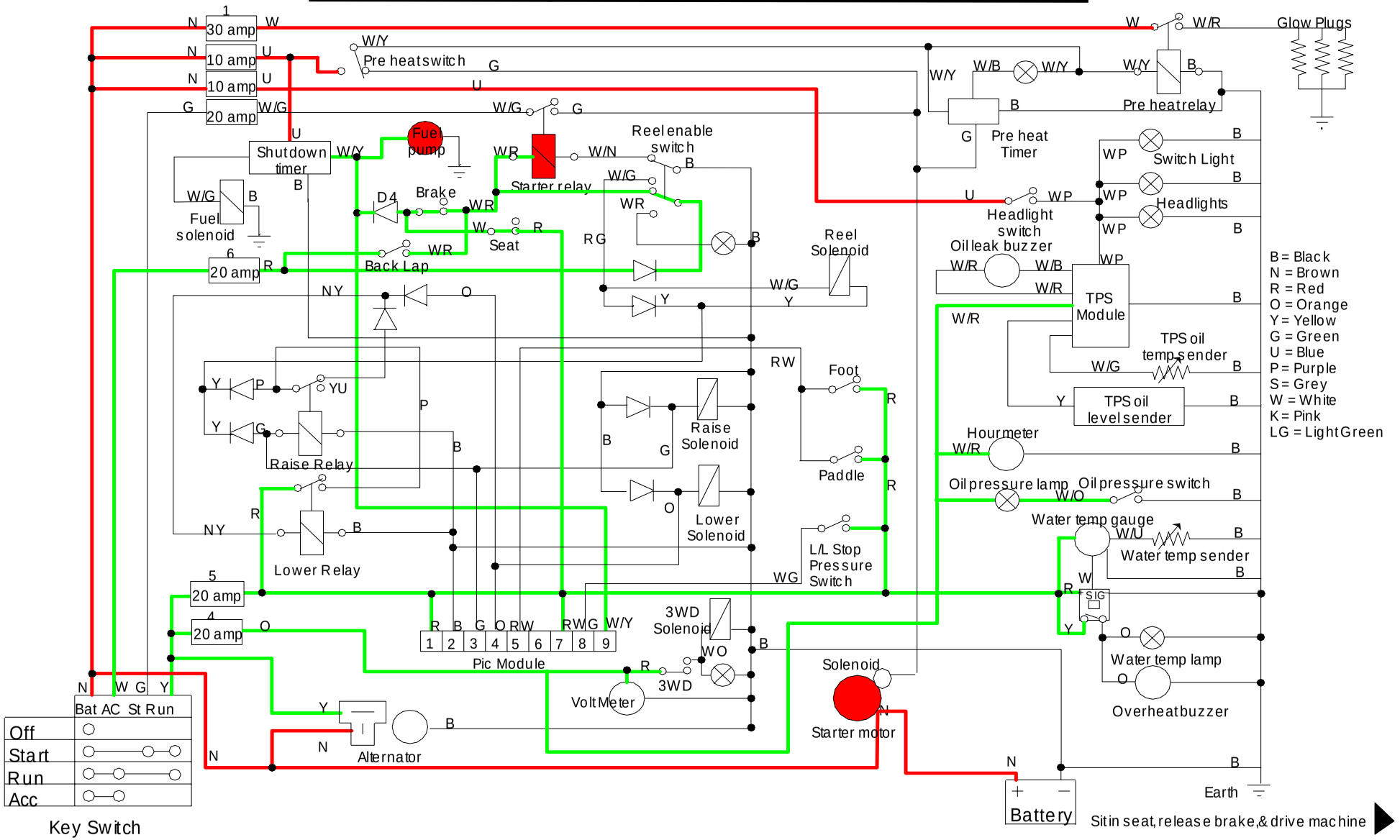
Ignition Key Off, Pre Heat Switch On



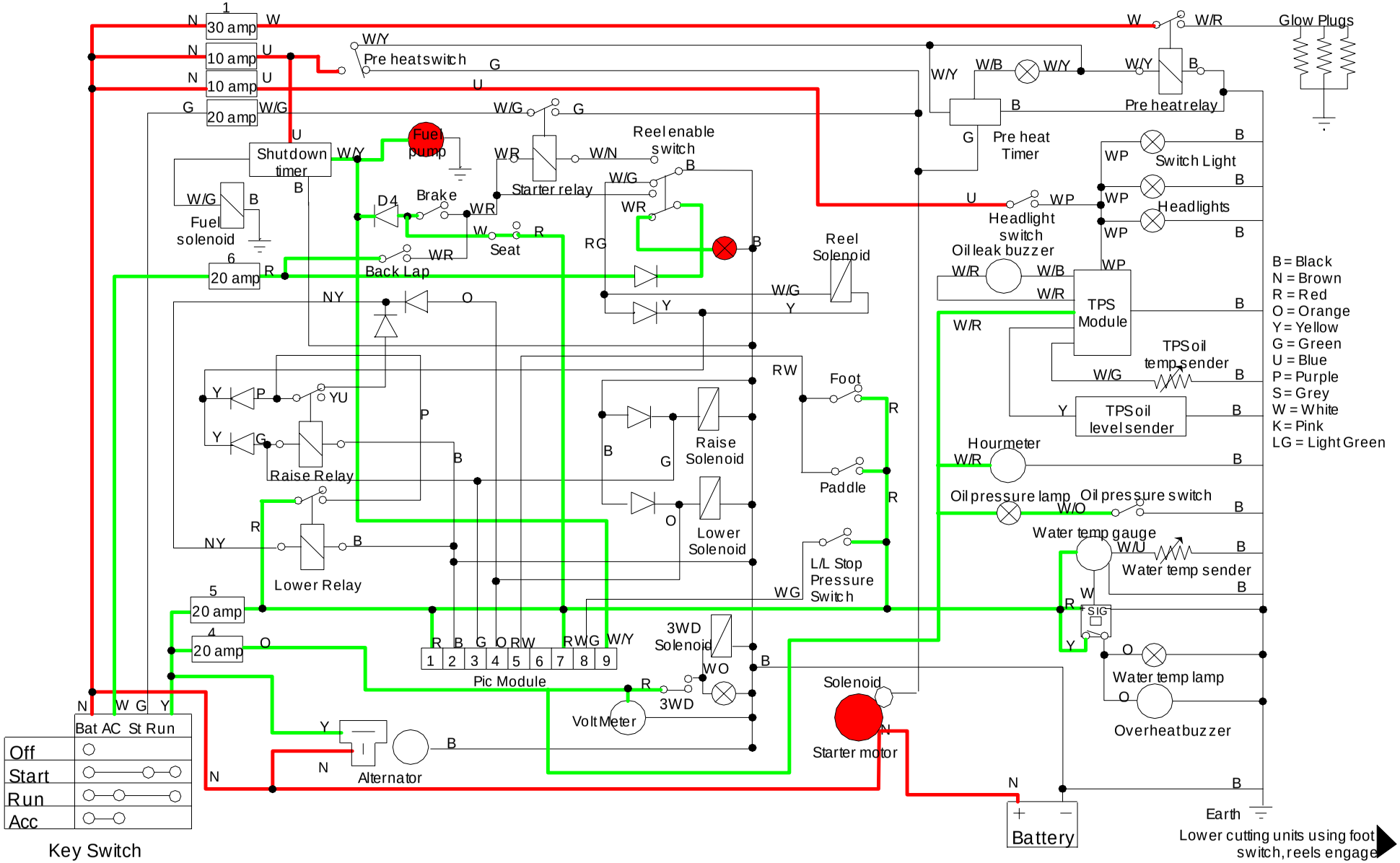
Ignition Key Start



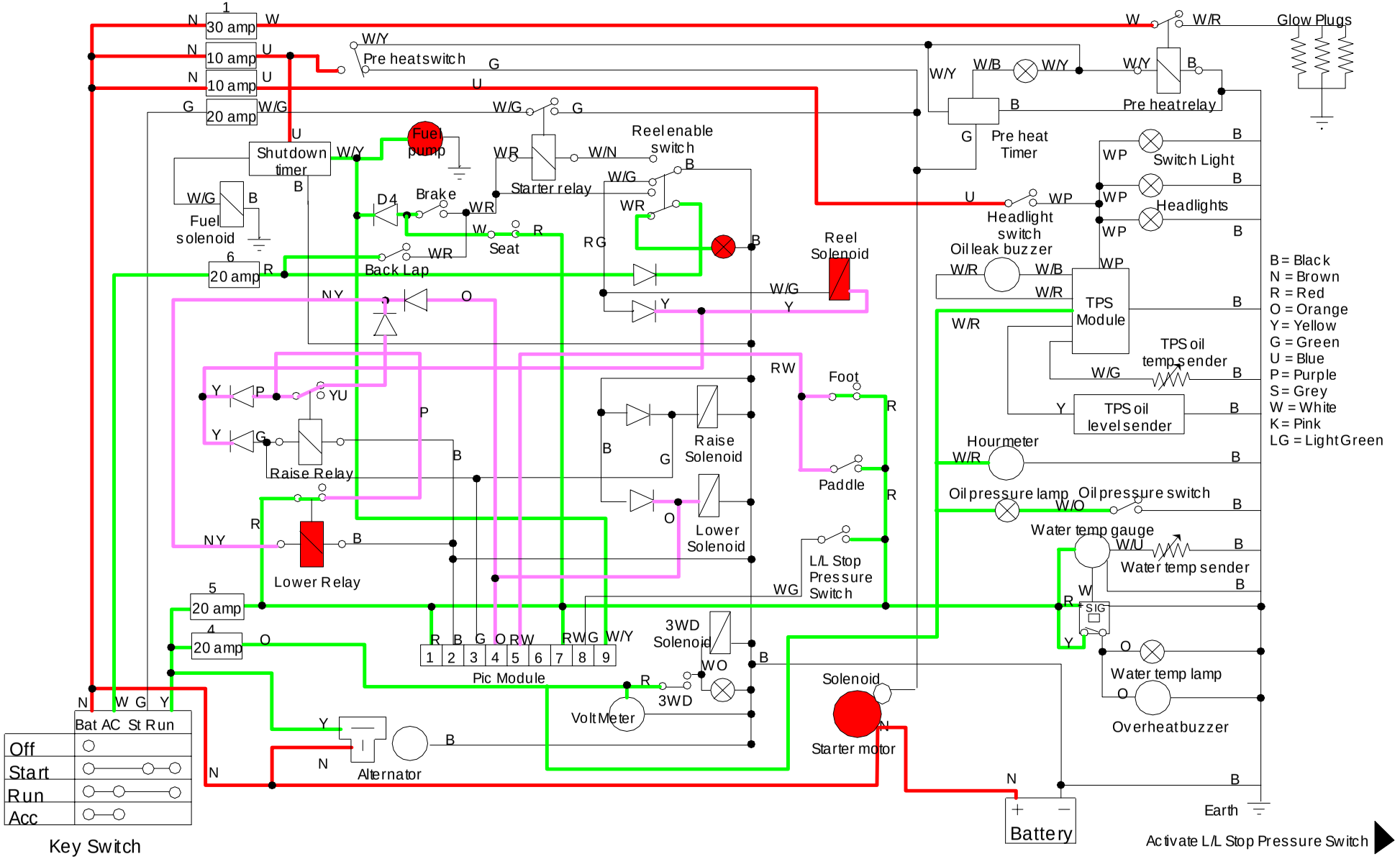
Engine Running, Brake Applied, & PTO Switch Off



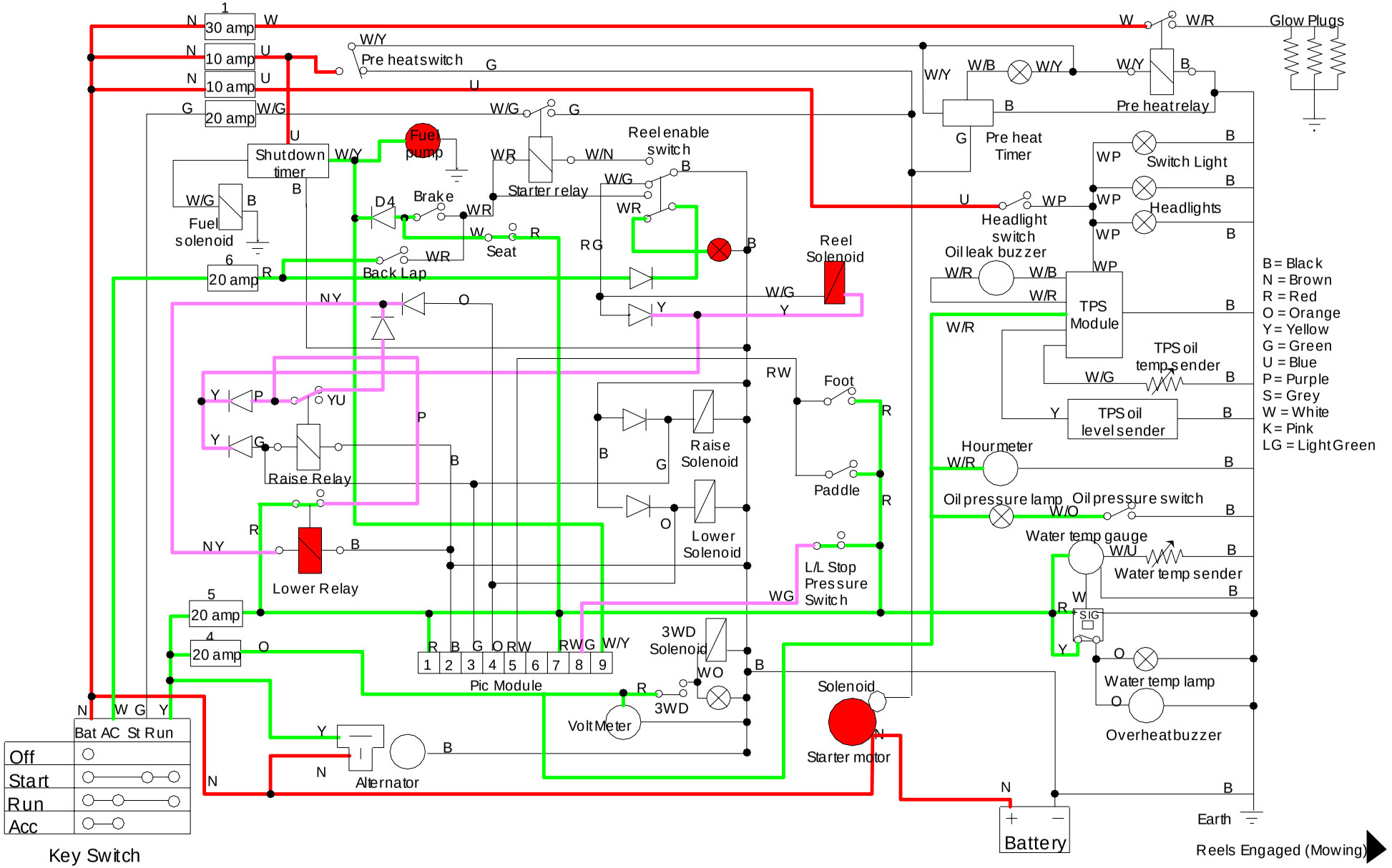
Sit in seat, release brake,& drive machine



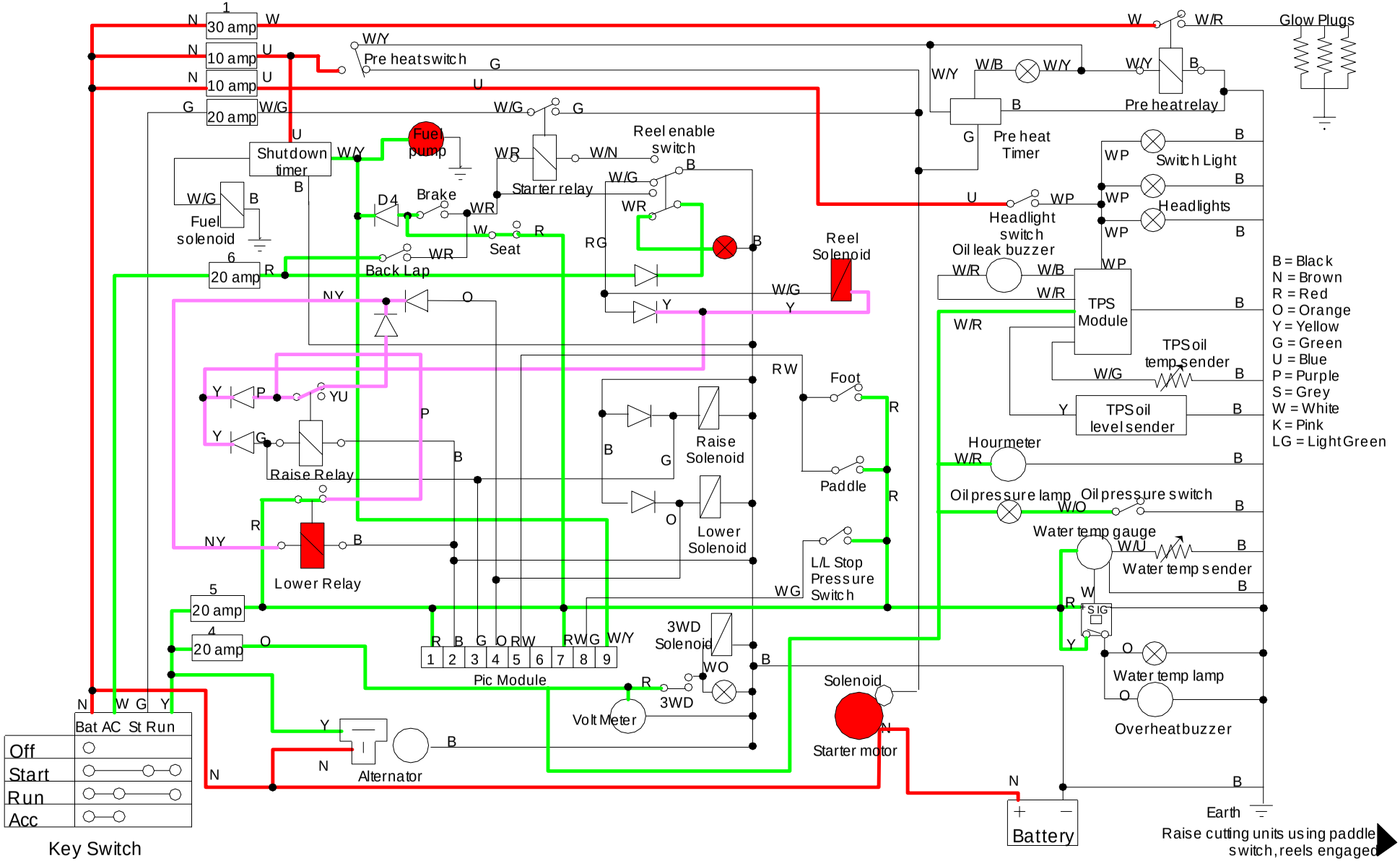
Lower Cutting Units Using Foot Switch, Reels Engage



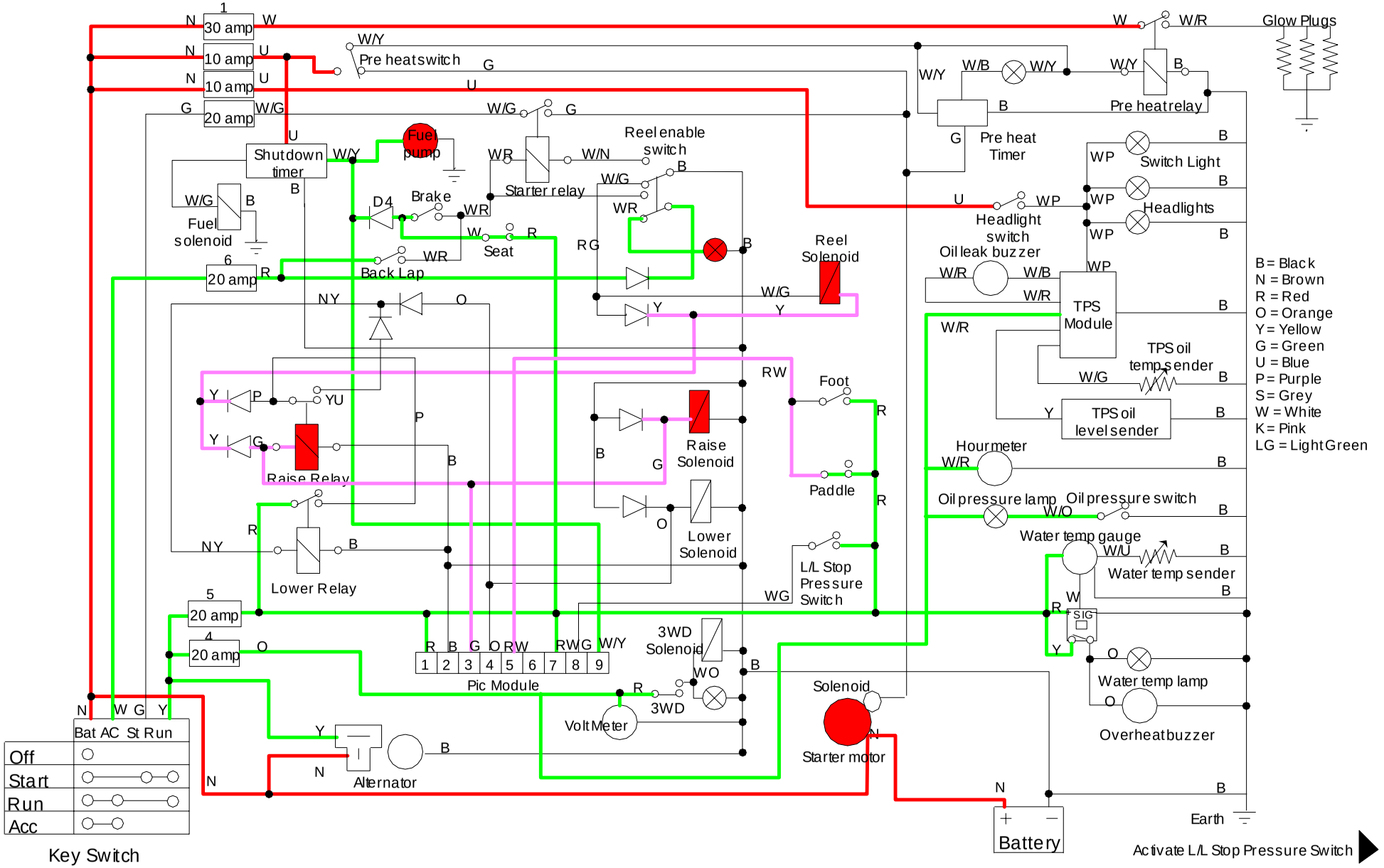
Activate L/L Stop Pressure Switch



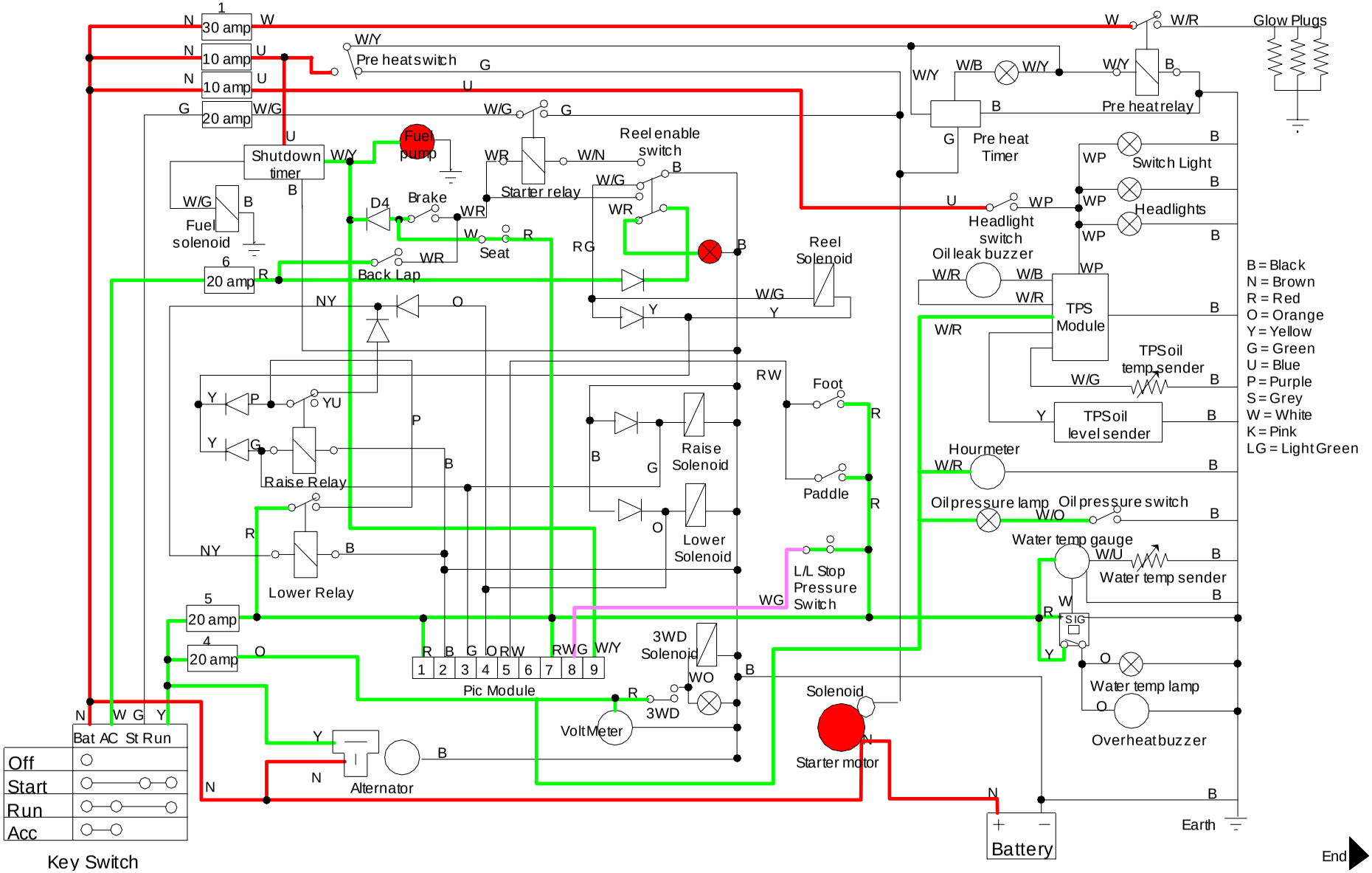
Reels Engaged (Mowing)



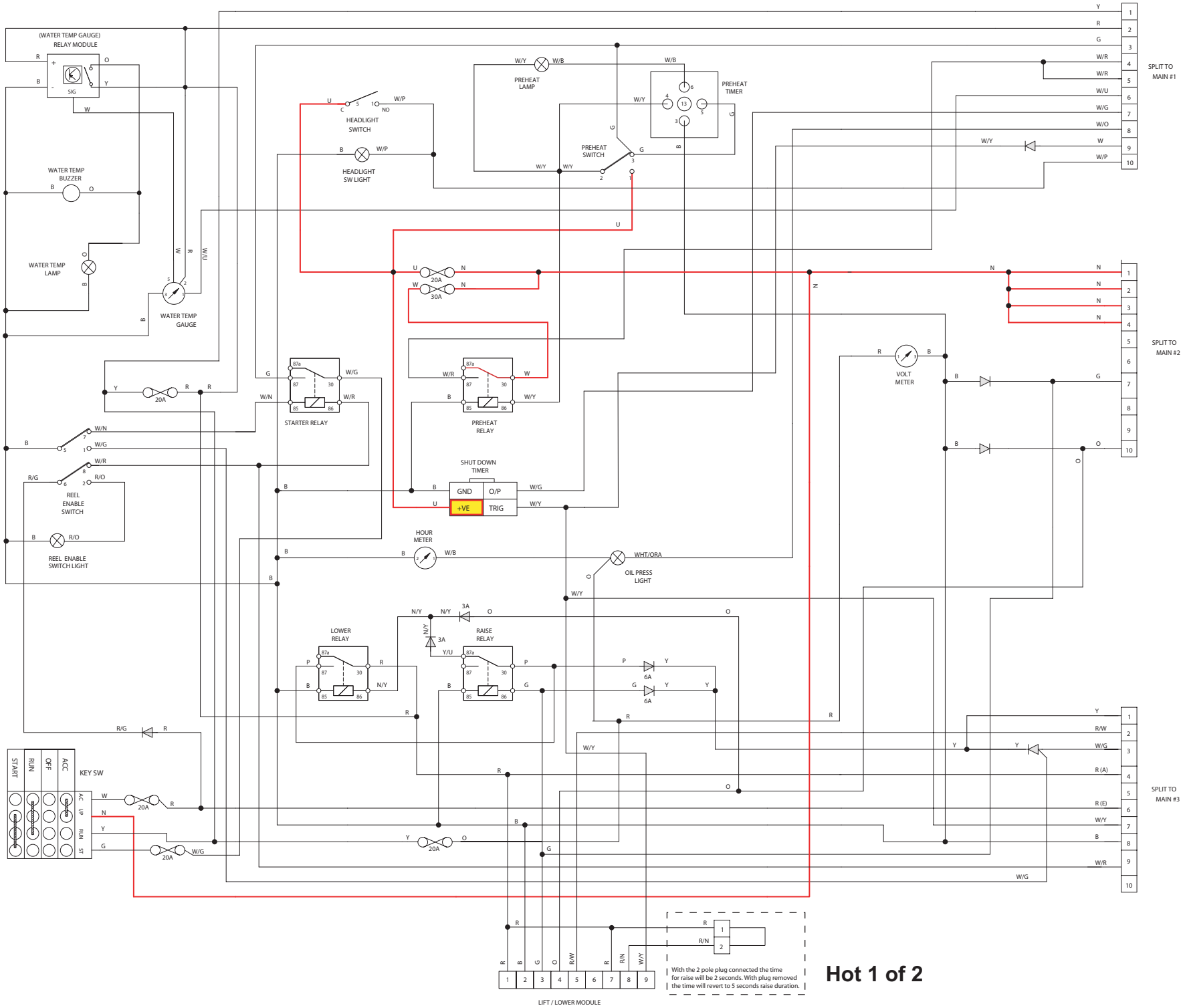
Raise Cutting Units Using Paddle Switch, Reels Engaged



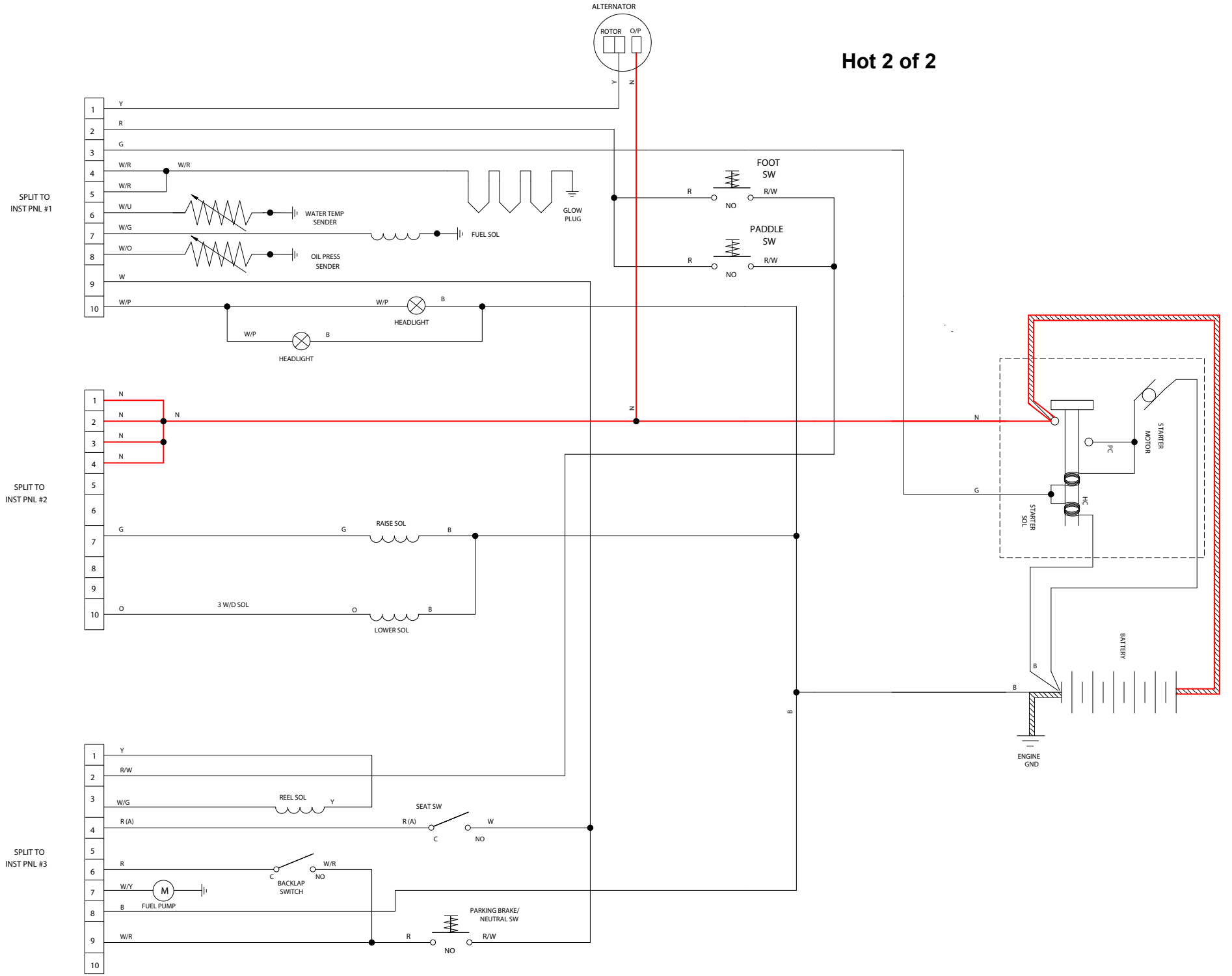
Activate L/L Stop Pressure Switch

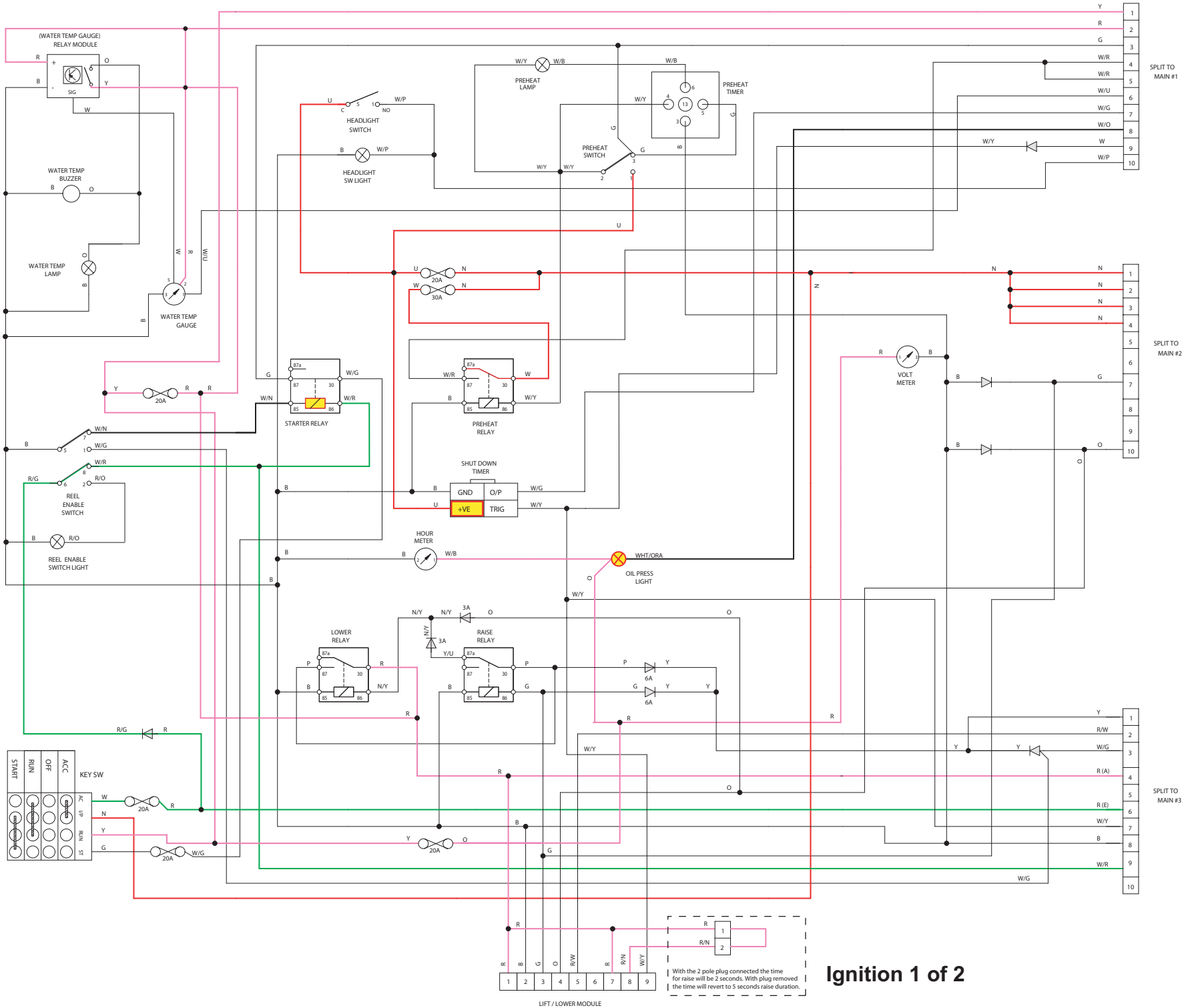


SECTION 10
ELECTRICAL SYSTEM
DP Series with Paddle Control


(WATER TEMP GAUGE)
RELAY MODULE
WATER TEMP BUZZER
WATER TEMP LAMP
WATER TEMP GAUGE
HEADLIGHT SWITCH
HEADLIGHT SW LIGHT
PREHEAT LAMP
PREHEAT TIMER
PREHEAT SWITCH
PREHEAT RELAY
STARTER RELAY
SHUT DOWN TIMER
GND
O/P
+VE
TRIG
HOUR METER
VOLT METER
OIL PRESS LIGHT
WHT/ORA
REEL ENABLE SWITCH
REEL ENABLE SWITCH LIGHT
LOWER RELAY
RAISE RELAY
KEY SW
START
RUN
OFF
ACC
SPLIT TO MAIN #1
SPLIT TO MAIN #2
SPLIT TO MAIN #3
LIFT / LOWER MODULE
With the 2 pole plug connected the time for raise will be 2 seconds. With plug removed the time will revert to 5 seconds raise duration.
Hot 1 of 2

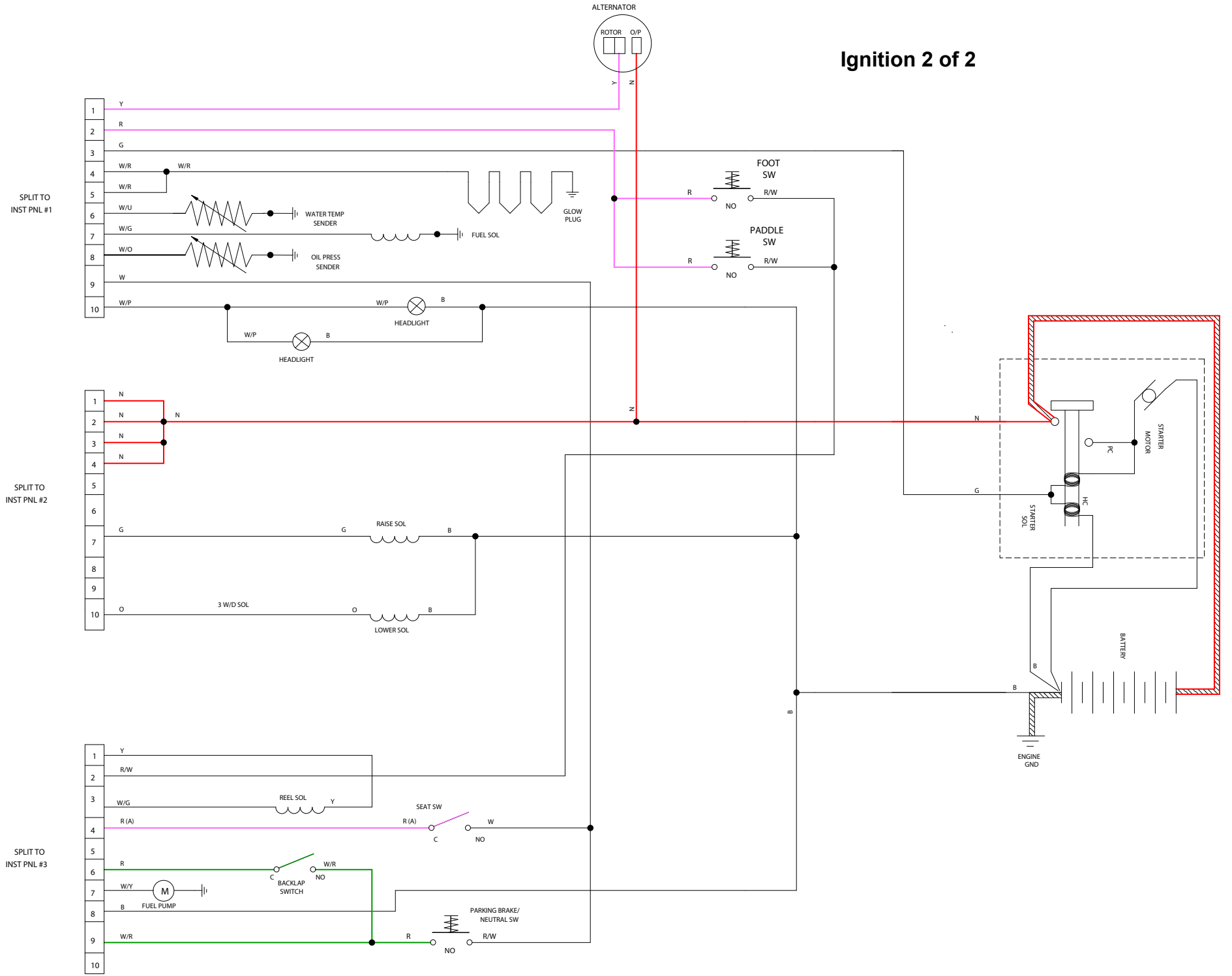
Hot 2 of 2

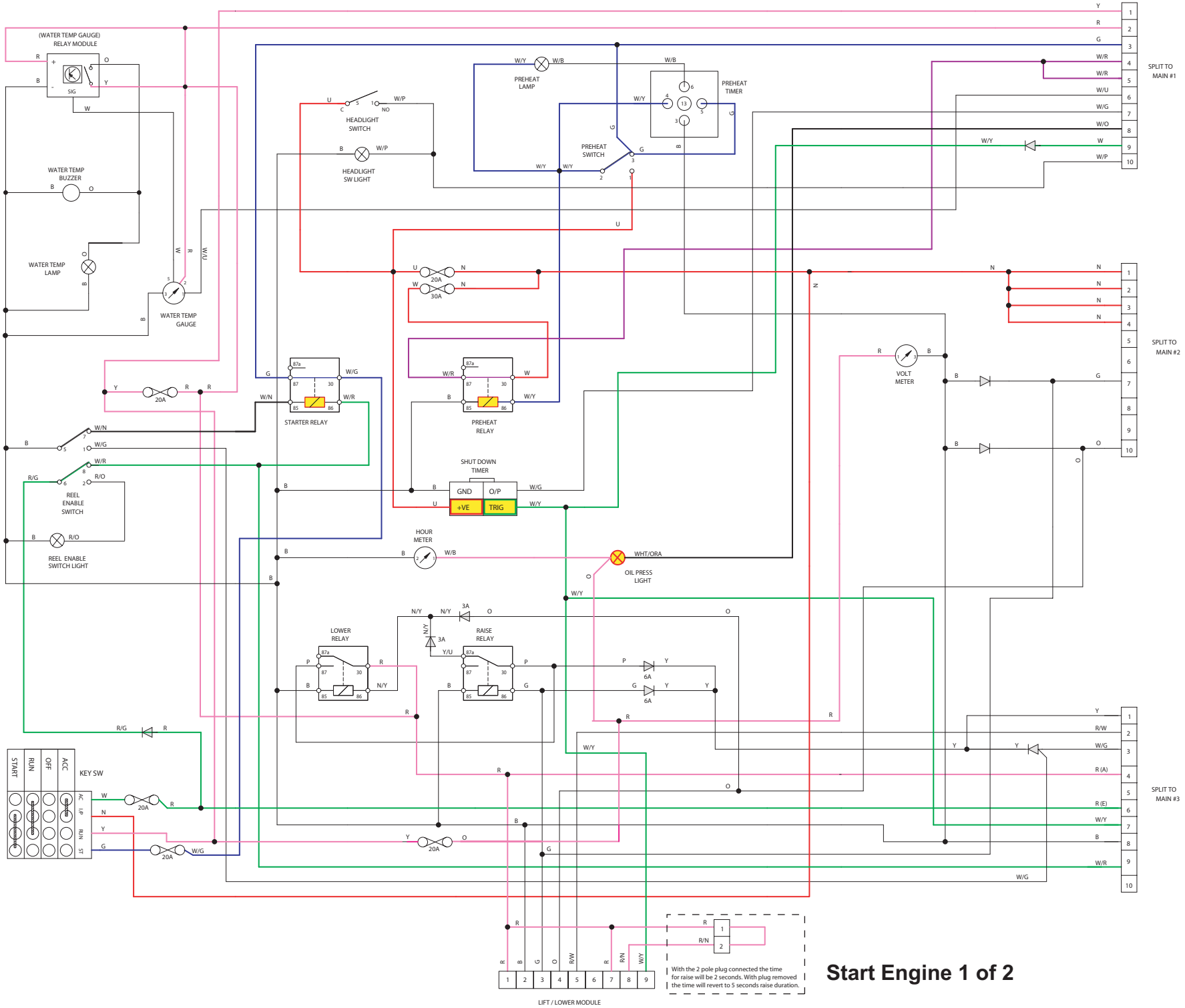

ALTERNATOR
ROTOR
O/P
Y
N
SPLIT TO INST PNL #1
SPLIT TO INST PNL #2
SPLIT TO INST PNL #3
WATER TEMP SENDER
FUEL SOL
GLOW PLUG
OIL PRESS SENDER
HEADLIGHT
HEADLIGHT
FOOT SW
PADDLE SW
NO
RAISE SOL
3 W/D SOL
LOWER SOL
REEL SOL
SEAT SW
BACKLAP SWITCH
FUEL PUMP
PARKING BRAKE/ NEUTRAL SW
STARTER MOTOR
STARTER SOL
PC
HC
BATTERY
ENGINE GND



Ignition 1 of 2

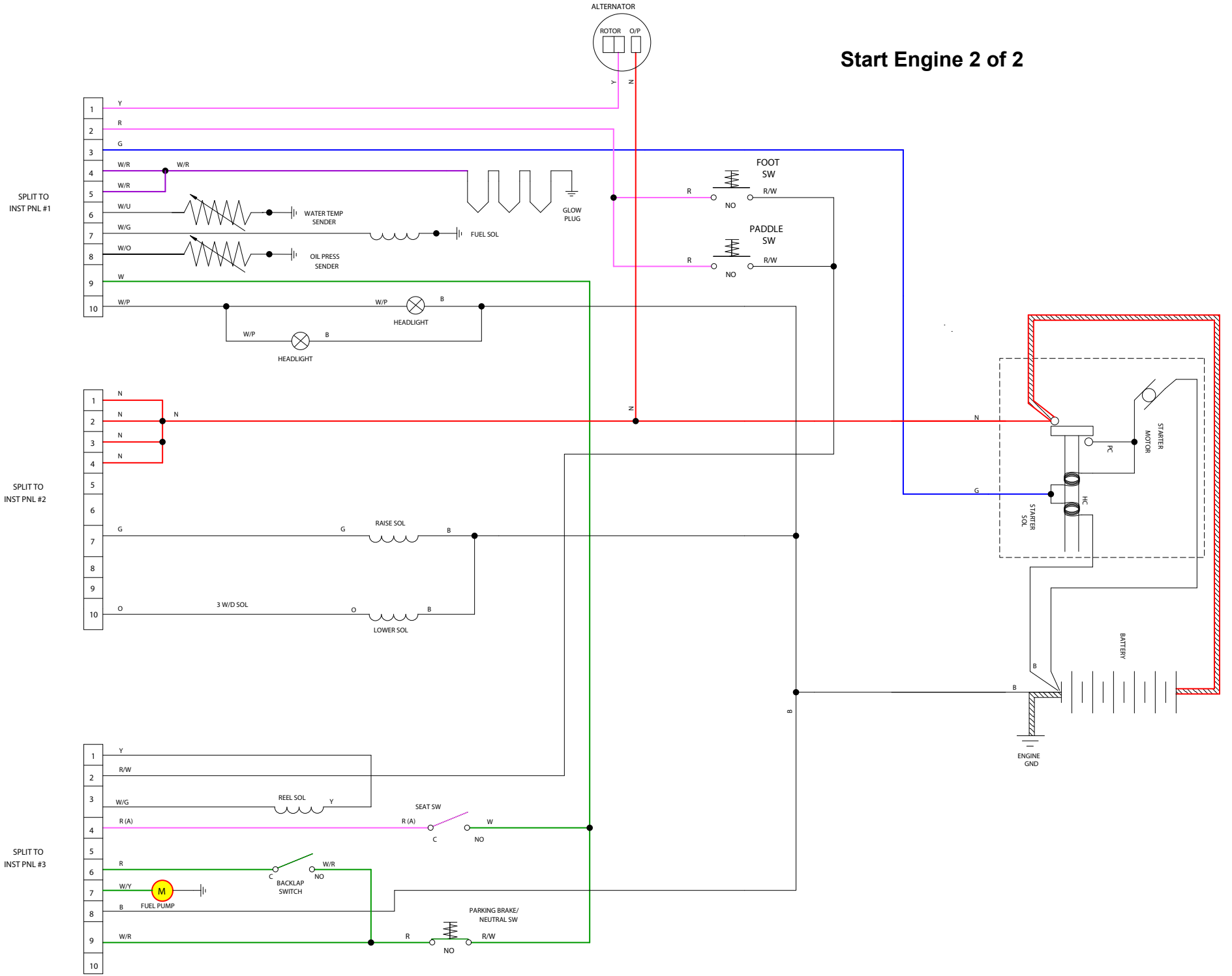
Ignition 2 of 2

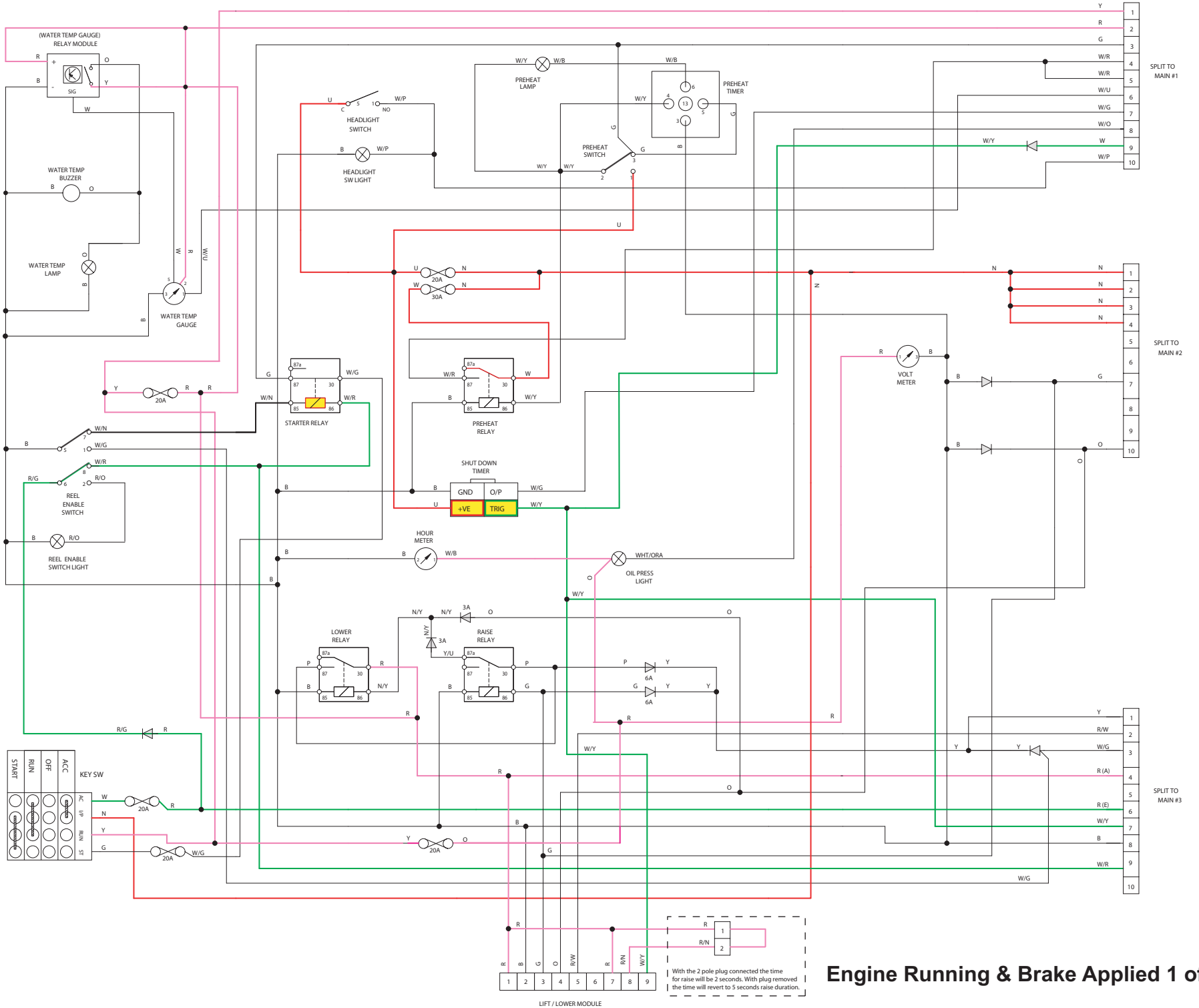




Start Engine 1 of 2

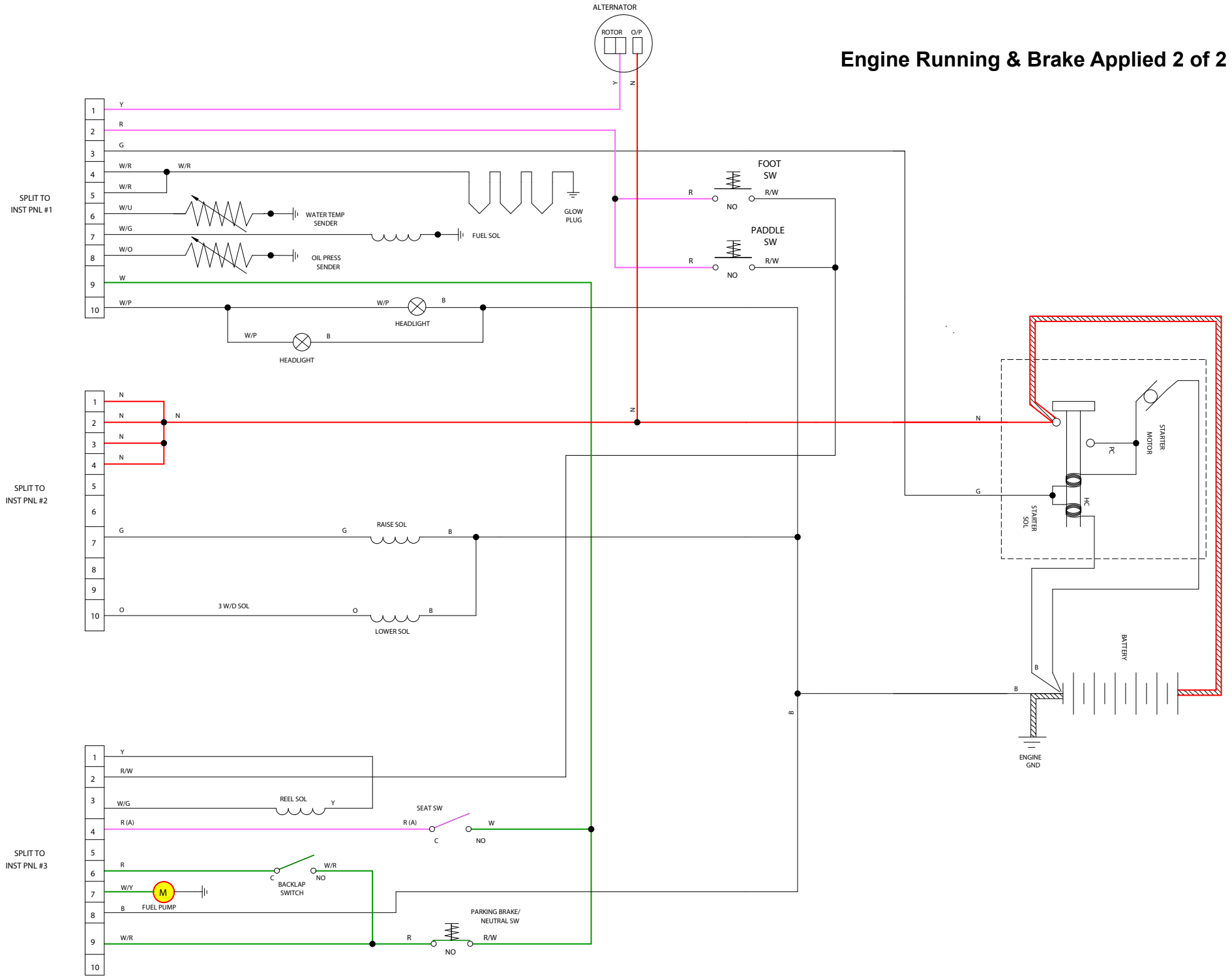
Start Engine 2 of 2

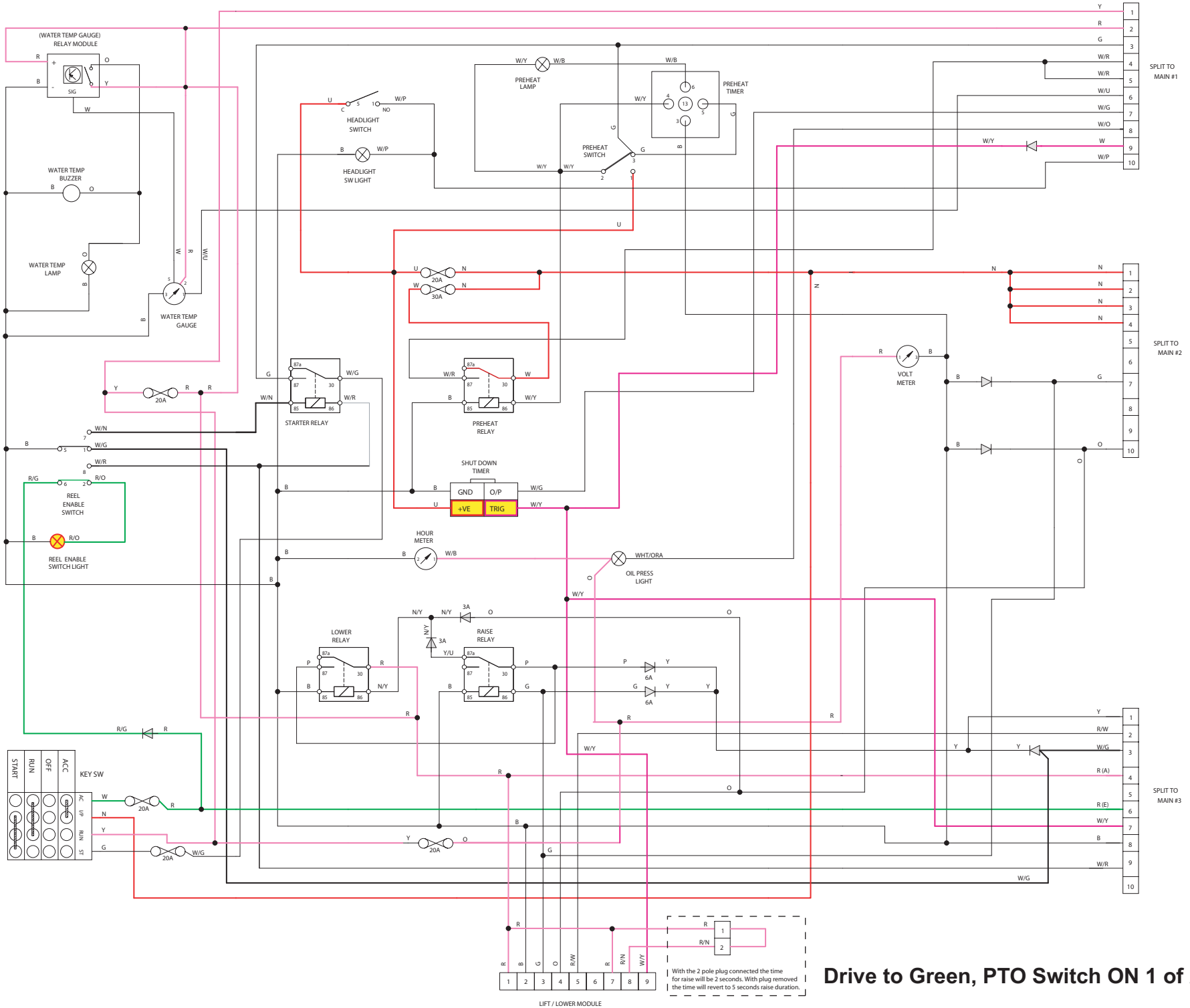




Engine Running & Brake Applied 1 of 2

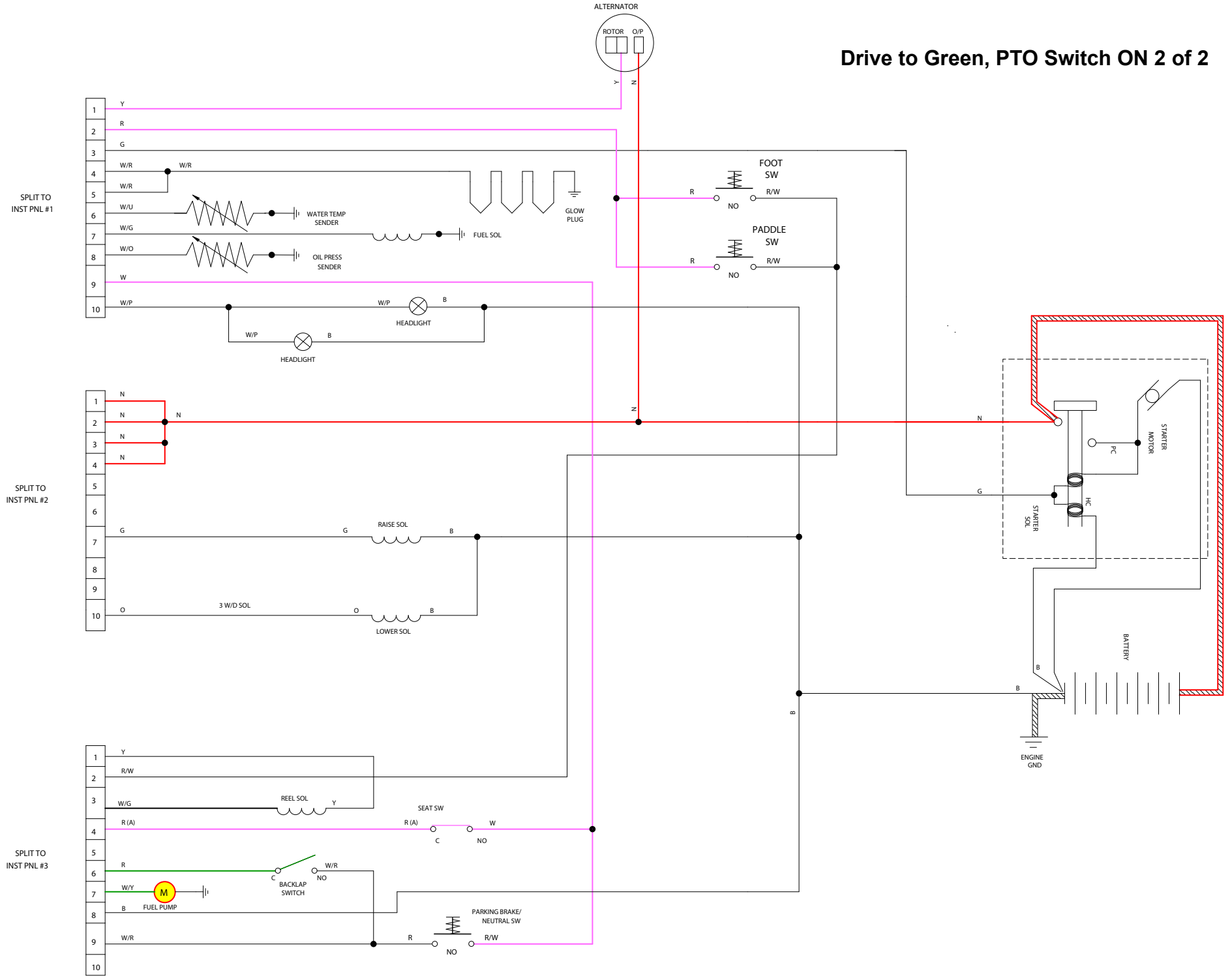
Engine Running & Brake Applied 2 of 2

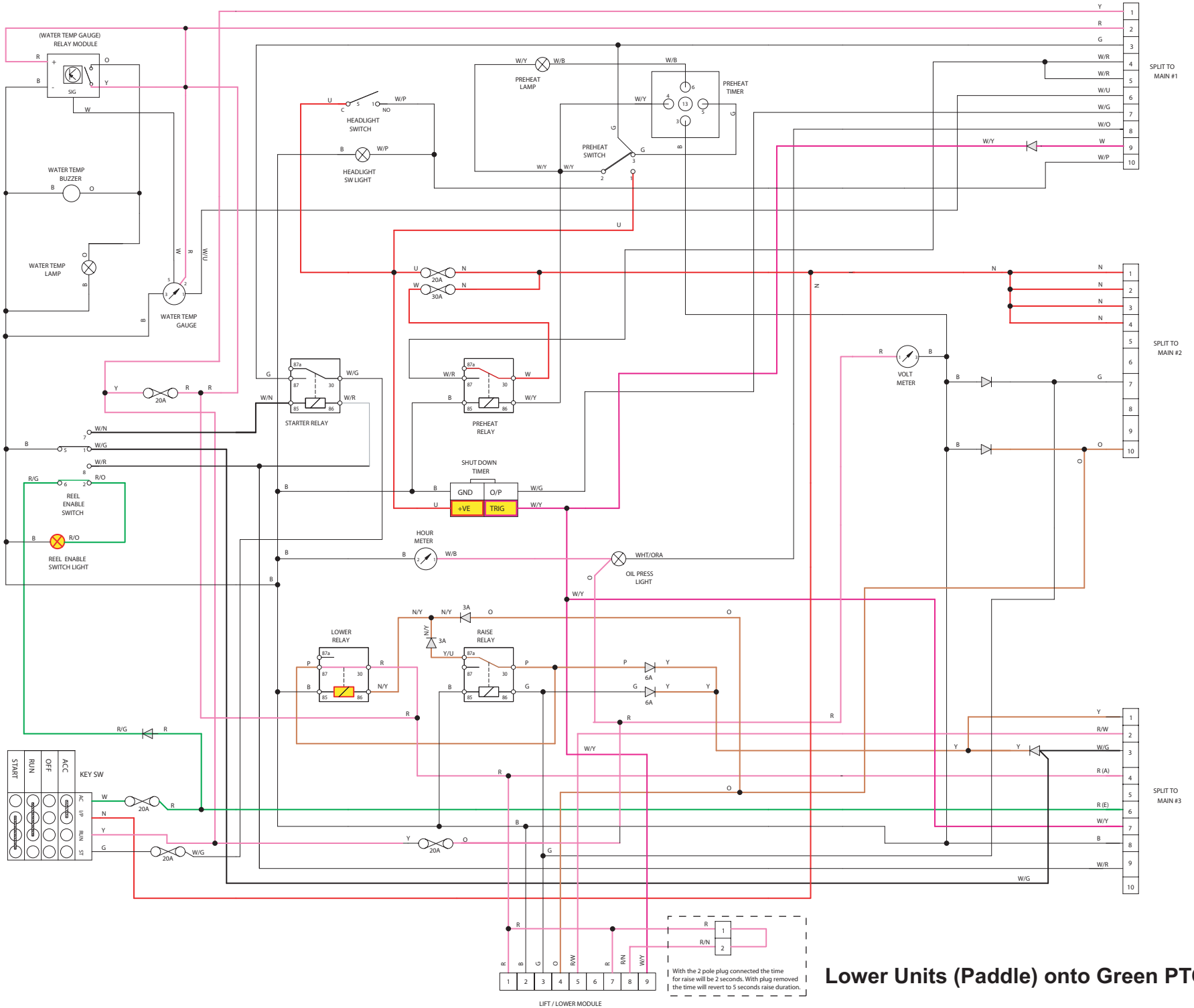




Drive to Green, PTO Switch ON 1 of 2

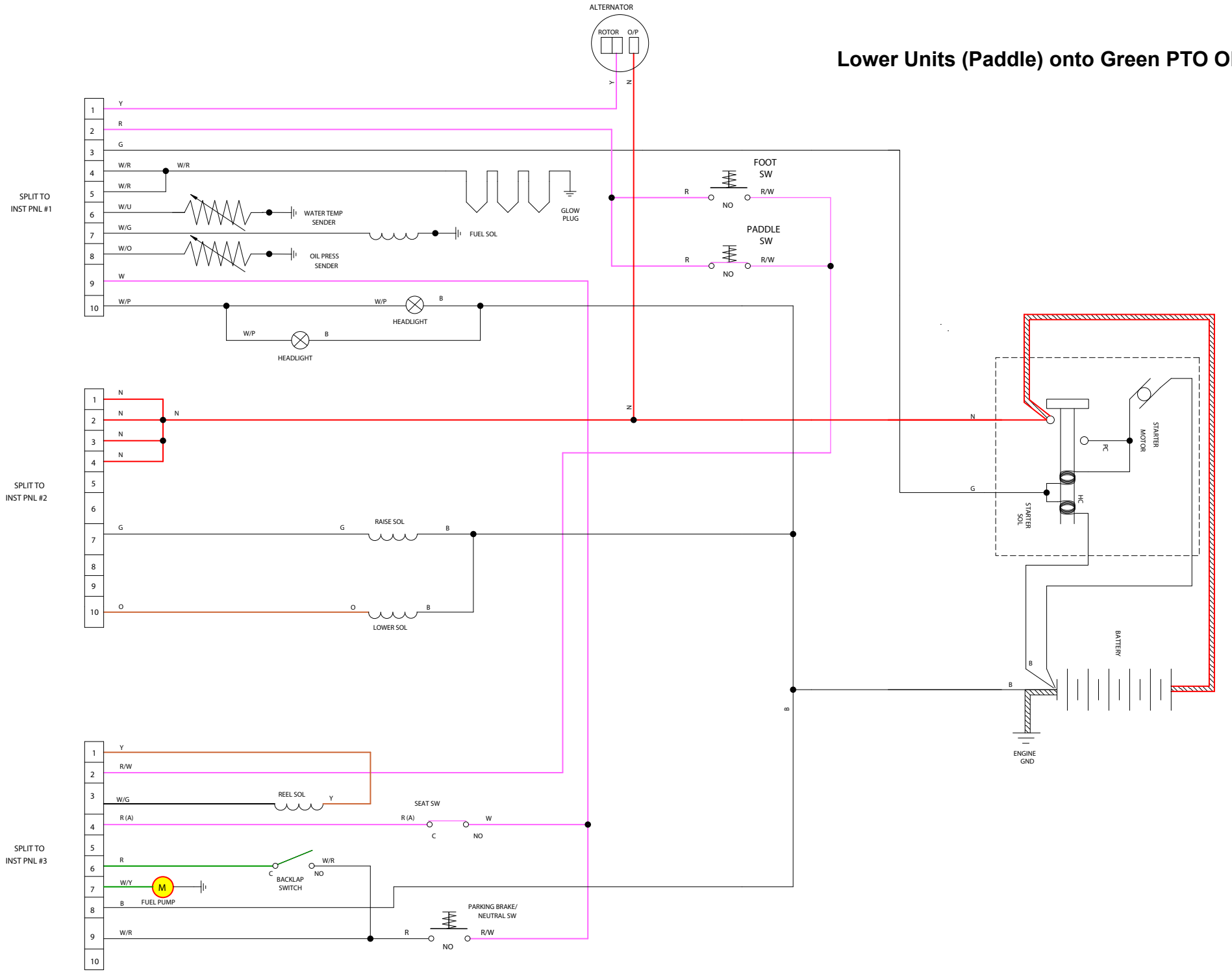
Drive to Green, PTO Switch ON 2 of 2

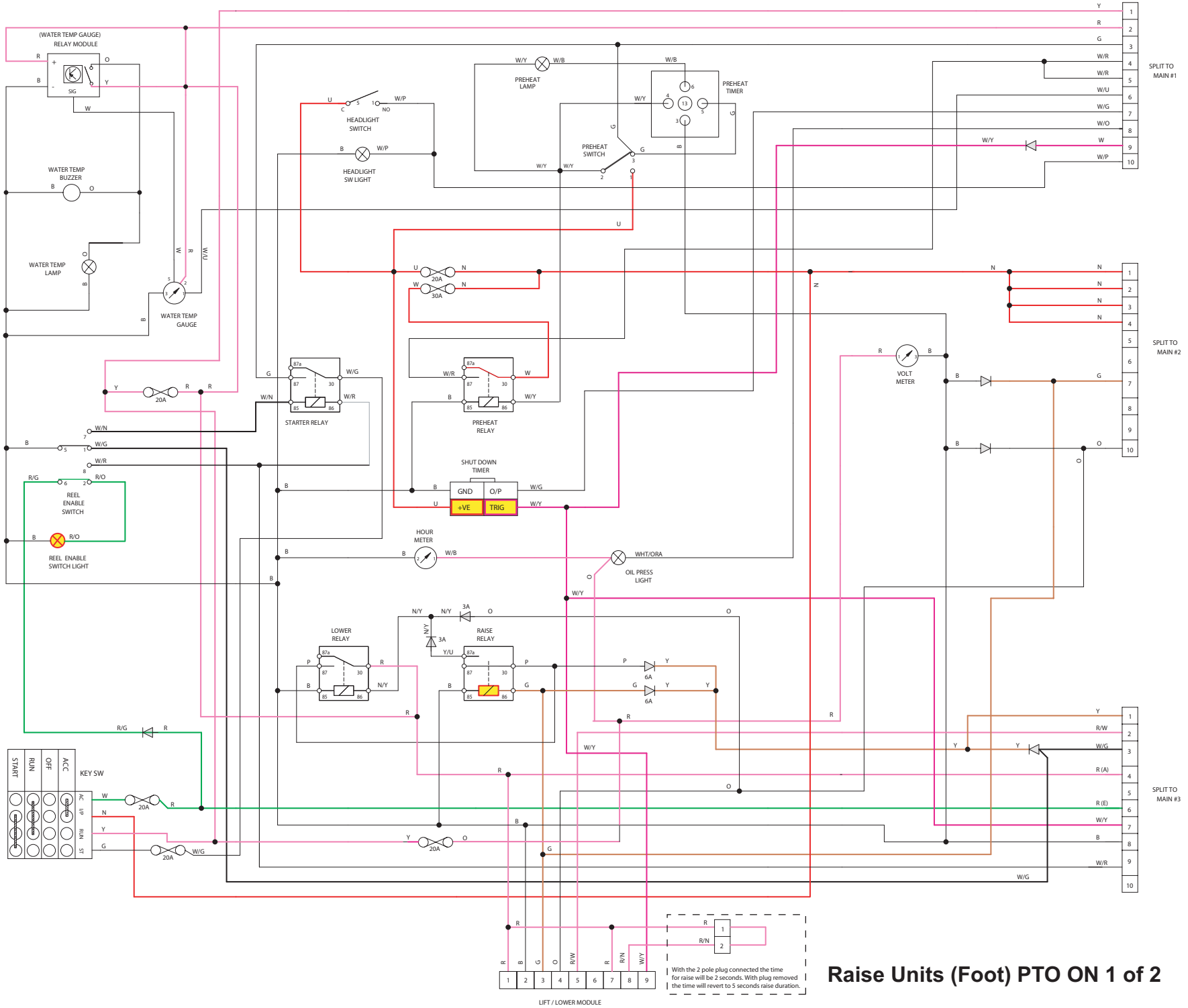




Lower Units (Paddle) onto Green PTO ON 1 of 2

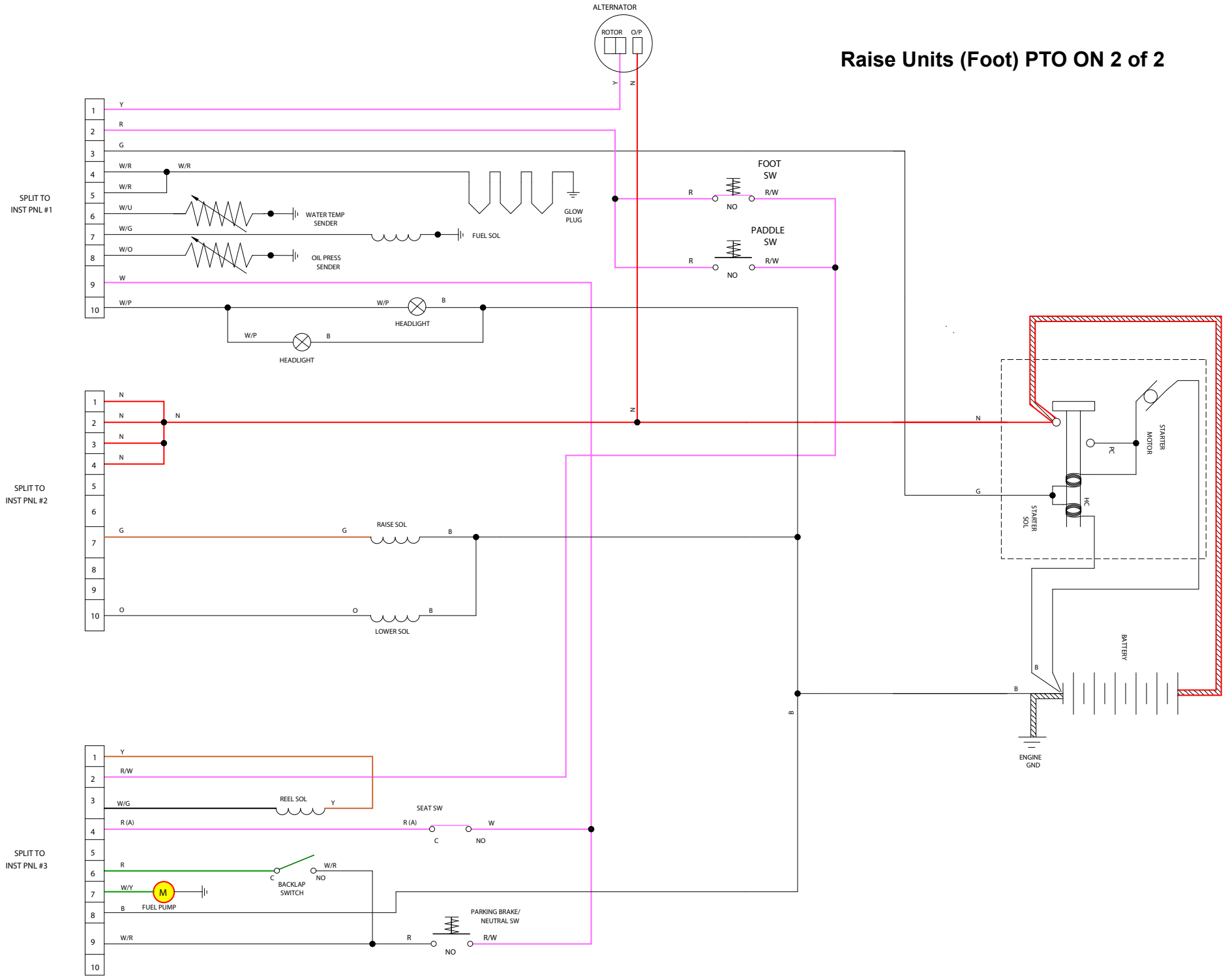
Lower Units (Paddle) onto Green PTO ON 2 of 2





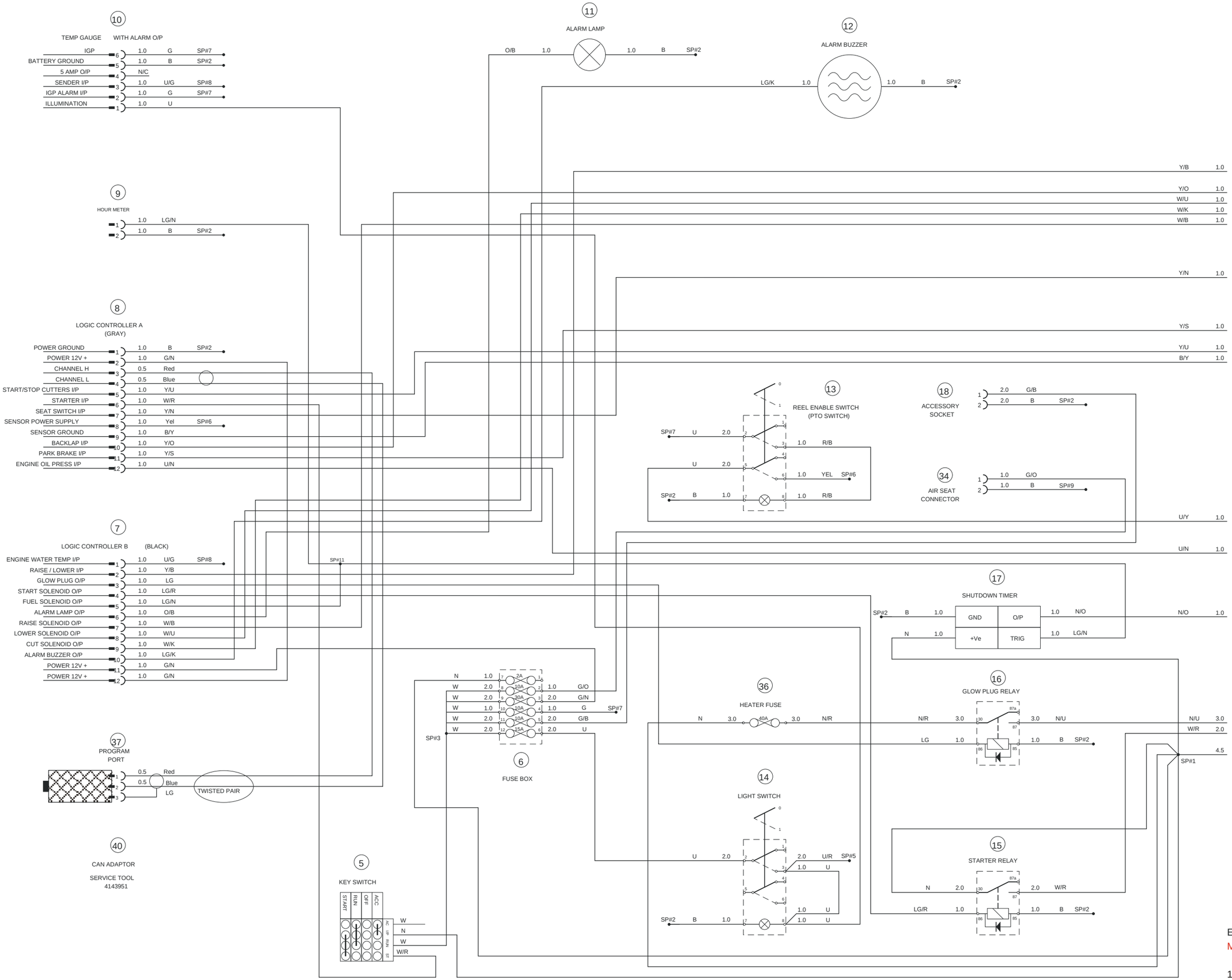
Raise Units (Foot) PTO ON 1 of 2

Raise Units (Foot) PTO ON 2 of 2



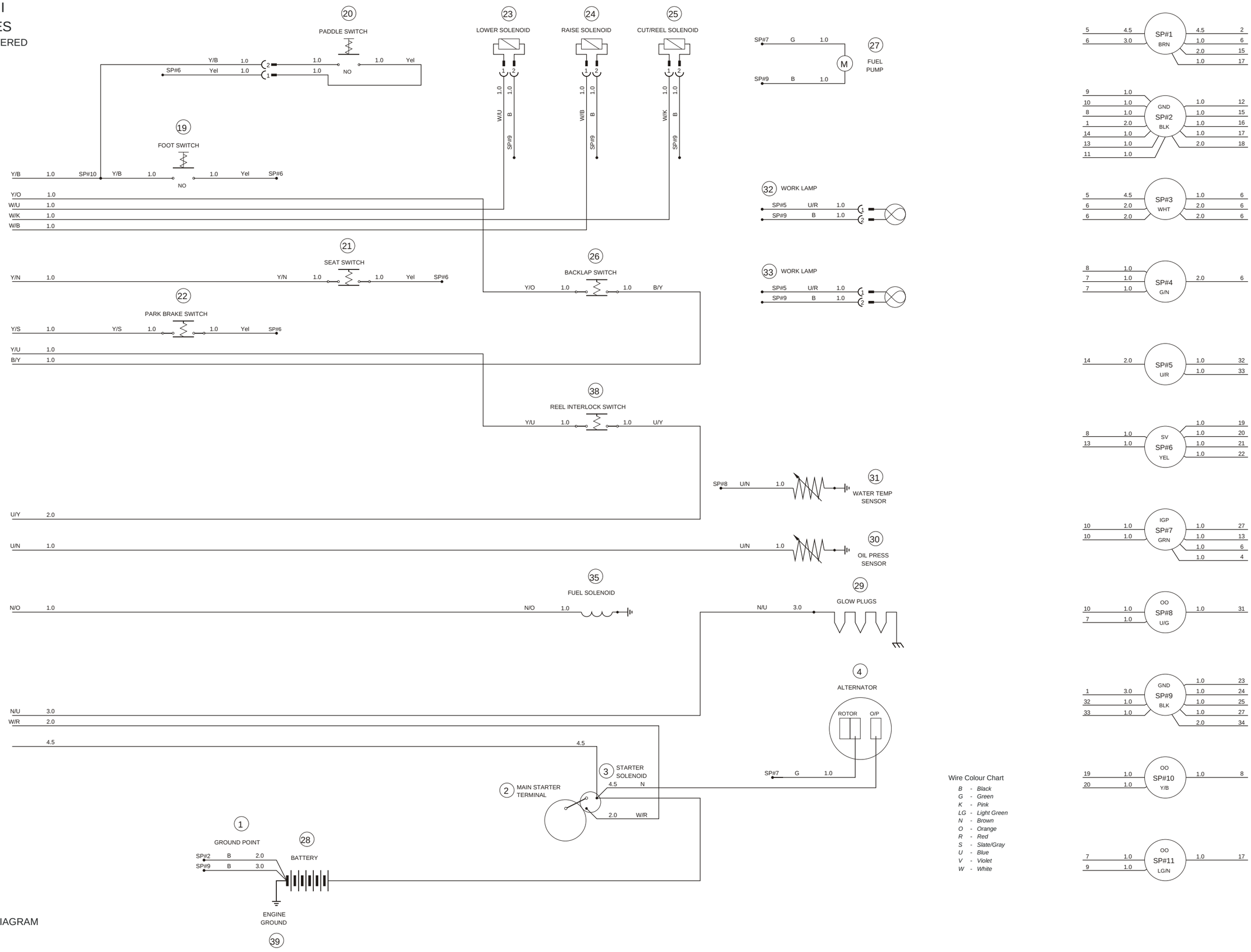
SECTION 10
ELECTRICAL SYSTEM
FH Series - Diesel Engine

G-PLEX III
FN SERIES
DIESEL POWERED



ELECTRIC DIAGRAM
MASTER

G-PLEX III
FN SERIES
DIESEL POWERED

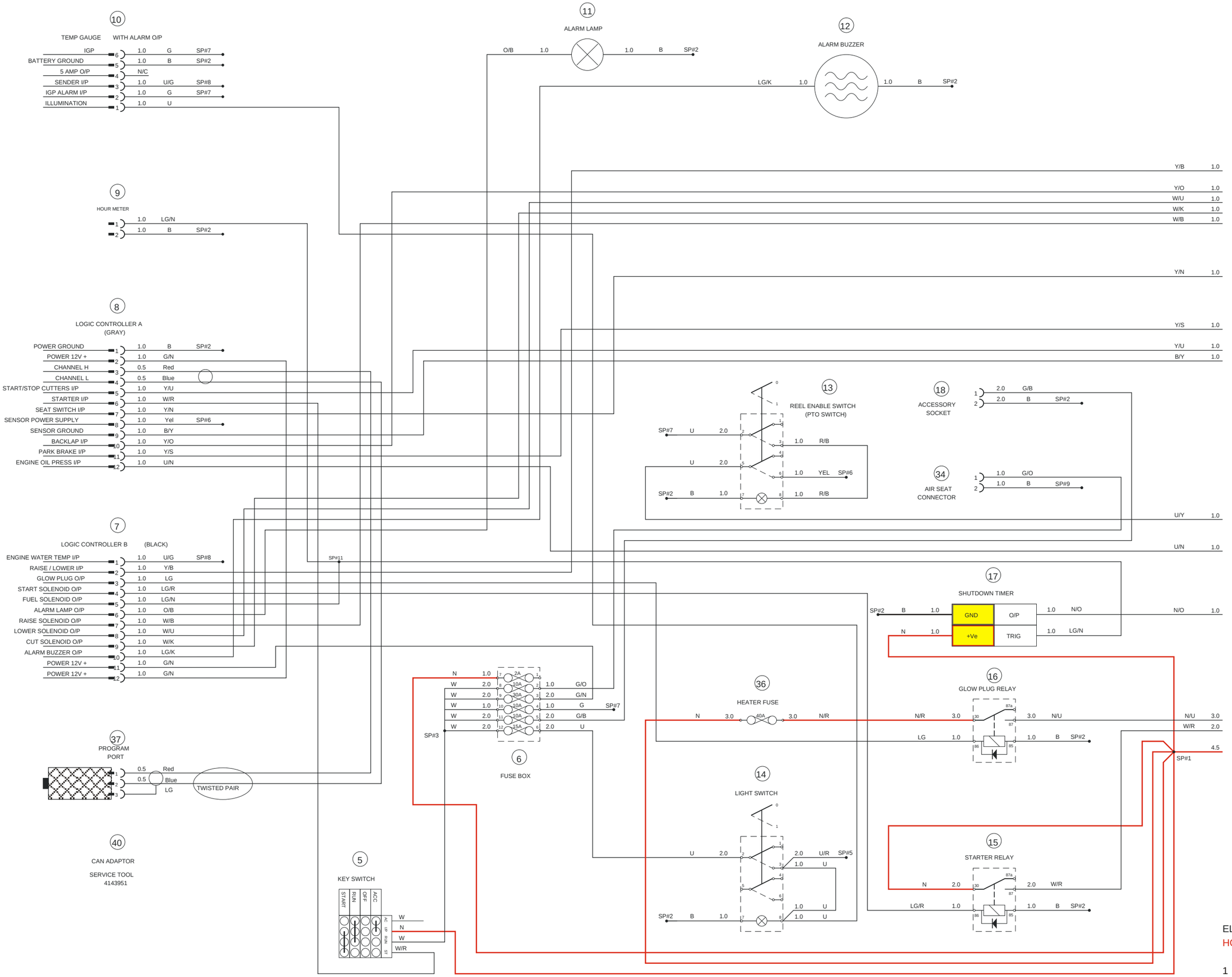


Wire Colour Chart

- B - Black
- G - Green
- K - Pink
- LG - Light Green
- N - Brown
- O - Orange
- R - Red
- S - Slate/Gray
- U - Blue
- V - Violet
- W - White

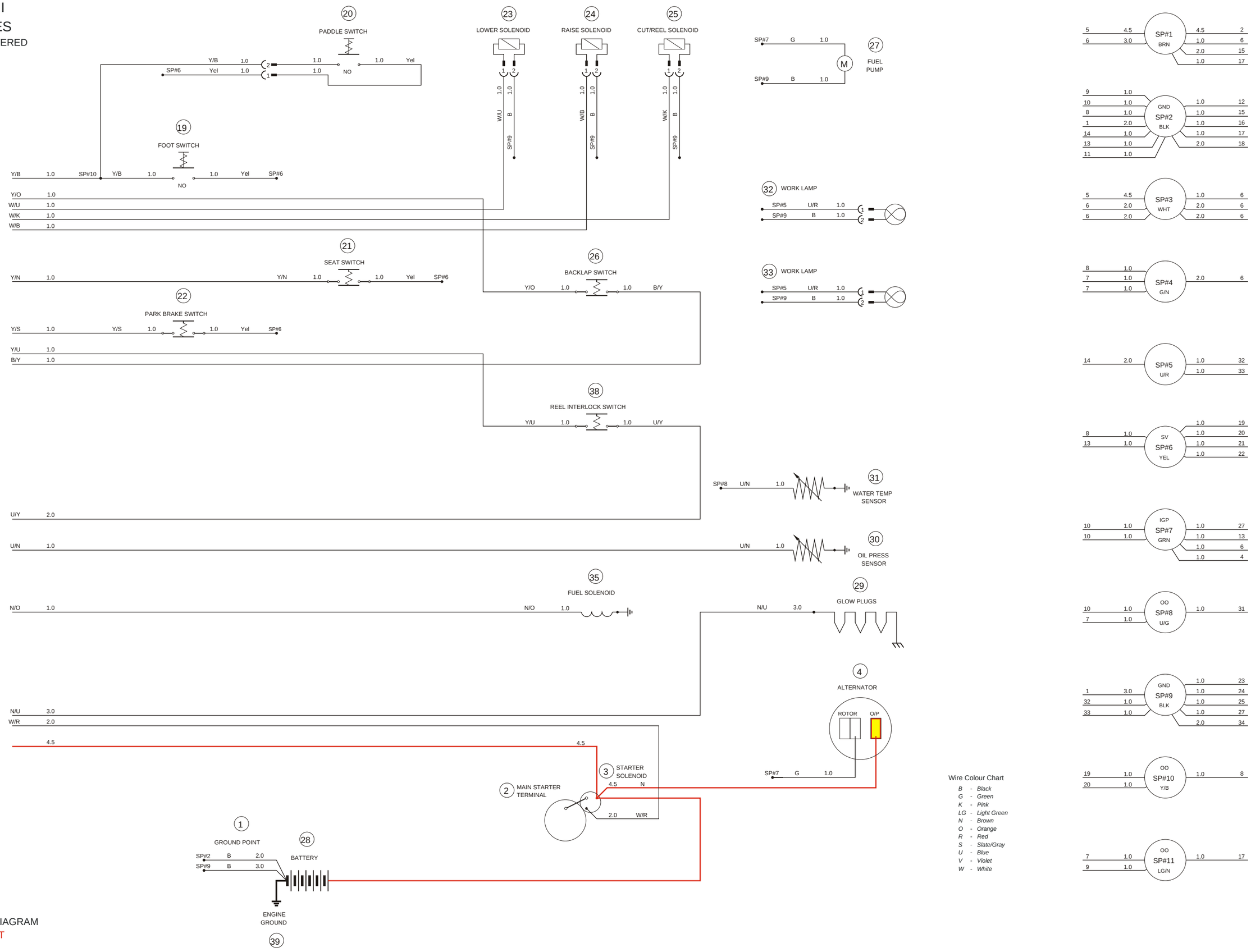
ELECTRIC DIAGRAM
MASTER

G-PLEX III
FN SERIES
DIESEL POWERED



ELECTRIC DIAGRAM
HOT CIRCUIT

G-PLEX III
FN SERIES
DIESEL POWERED



Wire Colour Chart

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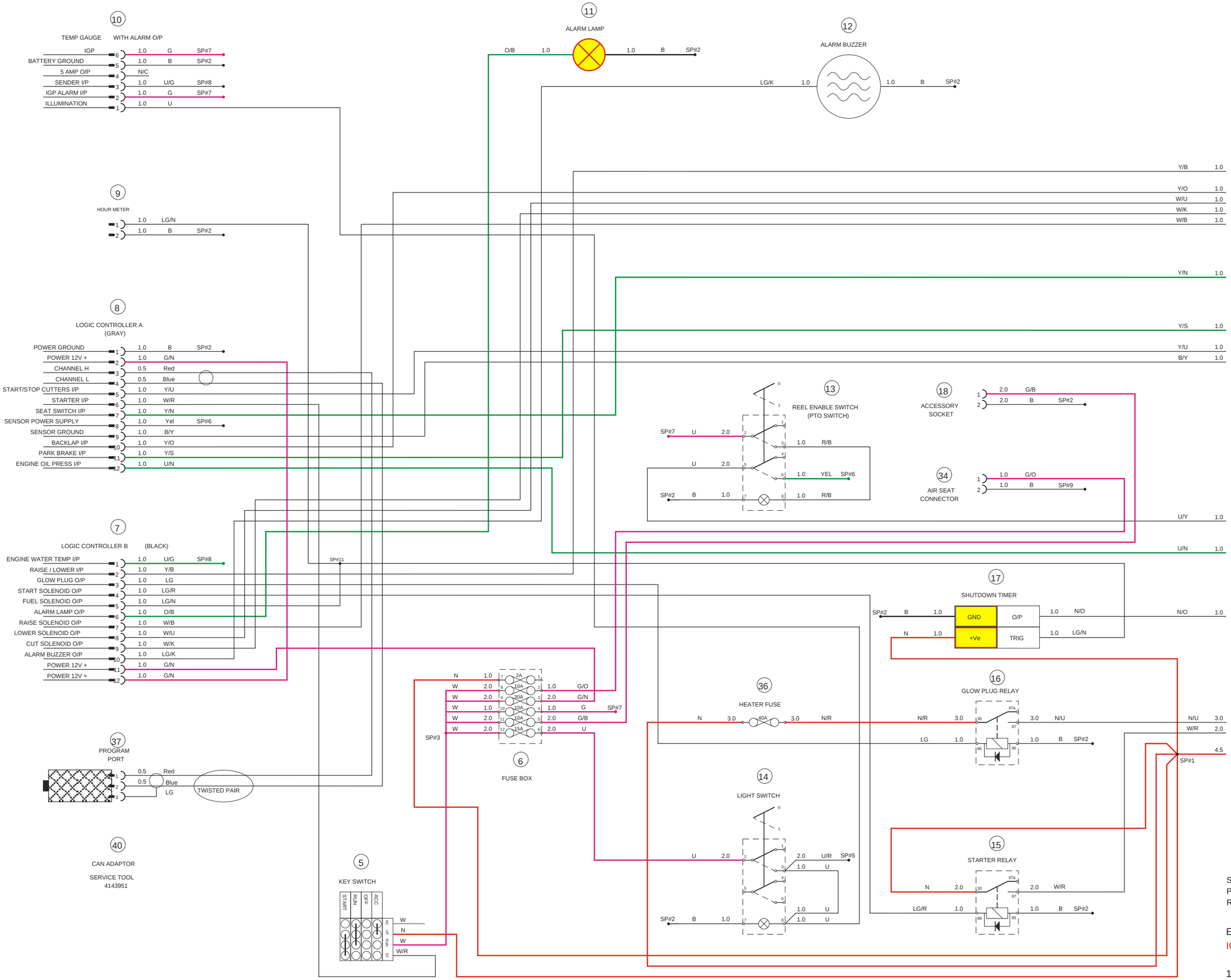
- U - Blue
- V - Violet
- W - White

ELECTRIC DIAGRAM
HOT CIRCUIT

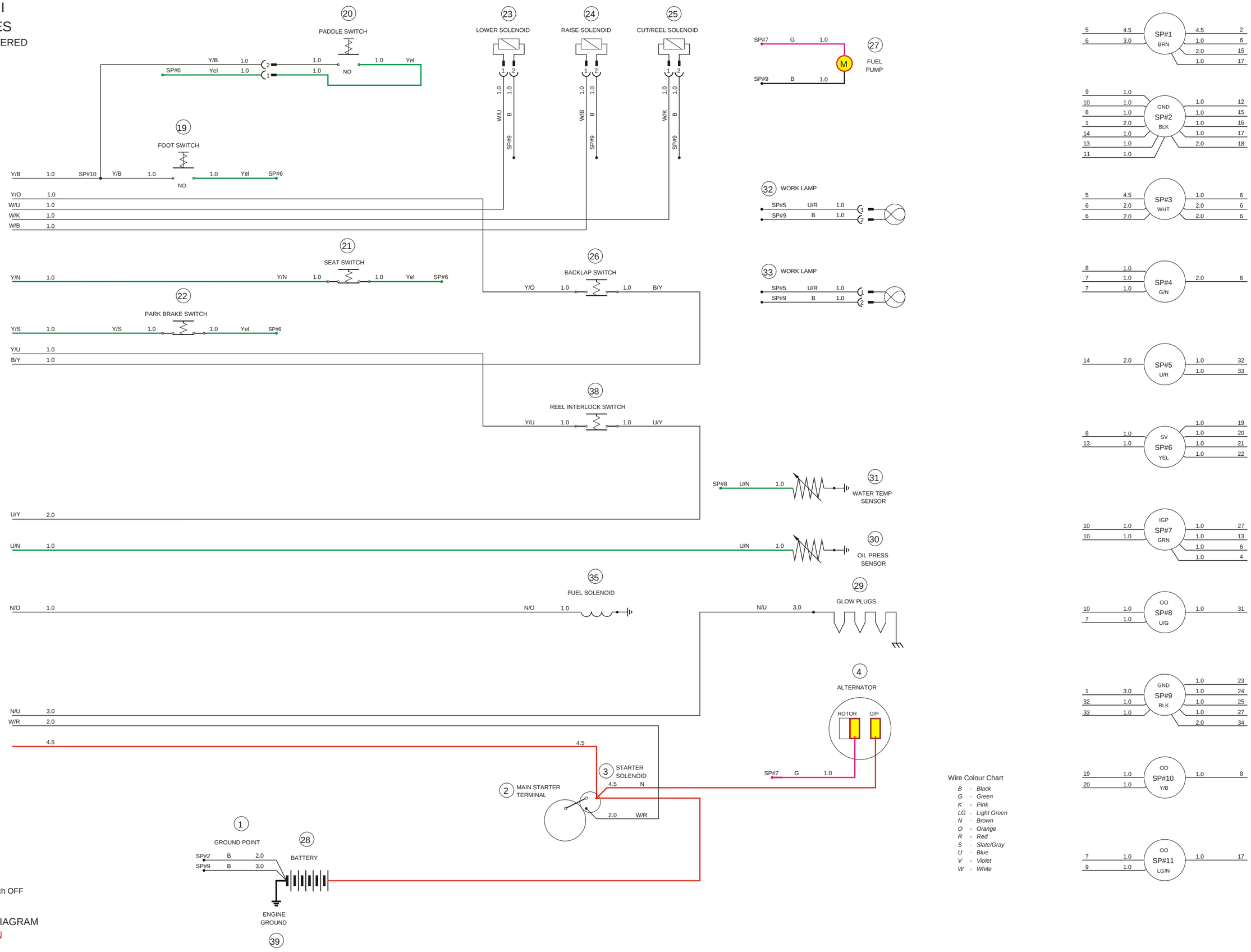
G-PLEX III
FN SERIES
DIESEL POWERED



Seat Switch ON
Park Brake ON
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
IGNITION ON

G-PLEX III
FN SERIES
DIESEL POWERED



Wire Colour Chart

B	-	Black
G	-	Green
K	-	Pink
LG	-	Light Green
N	-	Brown
O	-	Orange
R	-	Red
S	-	Slate/Gray
U	-	Blue
V	-	Violet
W	-	White

Seat Switch ON
Park Brake ON
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
IGNITION ON

G-PLEX III
FN SERIES
DIESEL POWERED

10
TEMP GAUGE WITH ALARM O/P

IGP	6	1.0	G	SP#7
BATTERY GROUND	5	1.0	B	SP#2
5 AMP O/P	4	N/C		
SENDER I/P	3	1.0	U/G	SP#8
IGP ALARM I/P	2	1.0	G	SP#7
ILLUMINATION	1	1.0	U	

11
ALARM LAMP

O/B 1.0 — 1.0 B SP#2

12
ALARM BUZZER

LG/K 1.0 — 1.0 B SP#2

9
HOUR METER

1	1.0	LG/N	
2	1.0	B	SP#2

8
LOGIC CONTROLLER A (GRAY)

POWER GROUND	1	1.0	B	SP#2
POWER 12V +	2	1.0	G/N	
CHANNEL H	3	0.5	Red	
CHANNEL L	4	0.5	Blue	
START/STOP CUTTERS I/P	5	1.0	Y/U	
STARTER I/P	6	1.0	W/R	
SEAT SWITCH I/P	7	1.0	Y/N	
SENSOR POWER SUPPLY	8	1.0	Yel	SP#6
SENSOR GROUND	9	1.0	B/Y	
BACKLAP I/P	10	1.0	Y/O	
PARK BRAKE I/P	11	1.0	Y/S	
ENGINE OIL PRESS I/P	12	1.0	U/N	

7
LOGIC CONTROLLER B (BLACK)

ENGINE WATER TEMP I/P	1	1.0	U/G	SP#8
RAISE / LOWER I/P	2	1.0	Y/B	
GLOW PLUG O/P	3	1.0	LG	
START SOLENOID O/P	4	1.0	LG/R	
FUEL SOLENOID O/P	5	1.0	LG/N	
ALARM LAMP O/P	6	1.0	O/B	
RAISE SOLENOID O/P	7	1.0	W/B	
LOWER SOLENOID O/P	8	1.0	W/U	
CUT SOLENOID O/P	9	1.0	W/K	
ALARM BUZZER O/P	10	1.0	LG/K	
POWER 12V +	11	1.0	G/N	
POWER 12V +	12	1.0	G/N	

SP#11

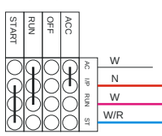
37
PROGRAM PORT

1	0.5	Red	
2	0.5	Blue	TWISTED PAIR
3		LG	

40
CAN ADAPTOR

SERVICE TOOL 4143951

5
KEY SWITCH

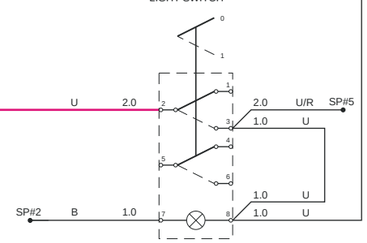


6
FUSE BOX

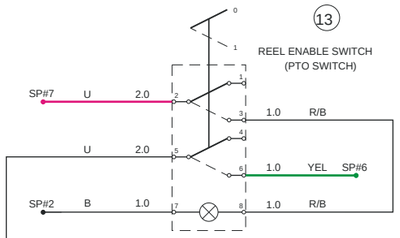
36
HEATER FUSE

N 3.0 — 40A — 3.0 N/R

14
LIGHT SWITCH



13
REEL ENABLE SWITCH (PTO SWITCH)



18
ACCESSORY SOCKET

1	2.0	G/B	
2	2.0	B	SP#2

34
AIR SEAT CONNECTOR

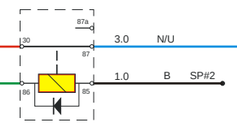
1	1.0	G/O	
2	1.0	B	SP#9

17
SHUTDOWN TIMER

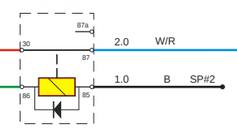
SP#2 B 1.0 — GND — O/P — 1.0 N/O

N 1.0 — +Ve — TRIG — 1.0 LG/N

16
GLOW PLUG RELAY



15
STARTER RELAY

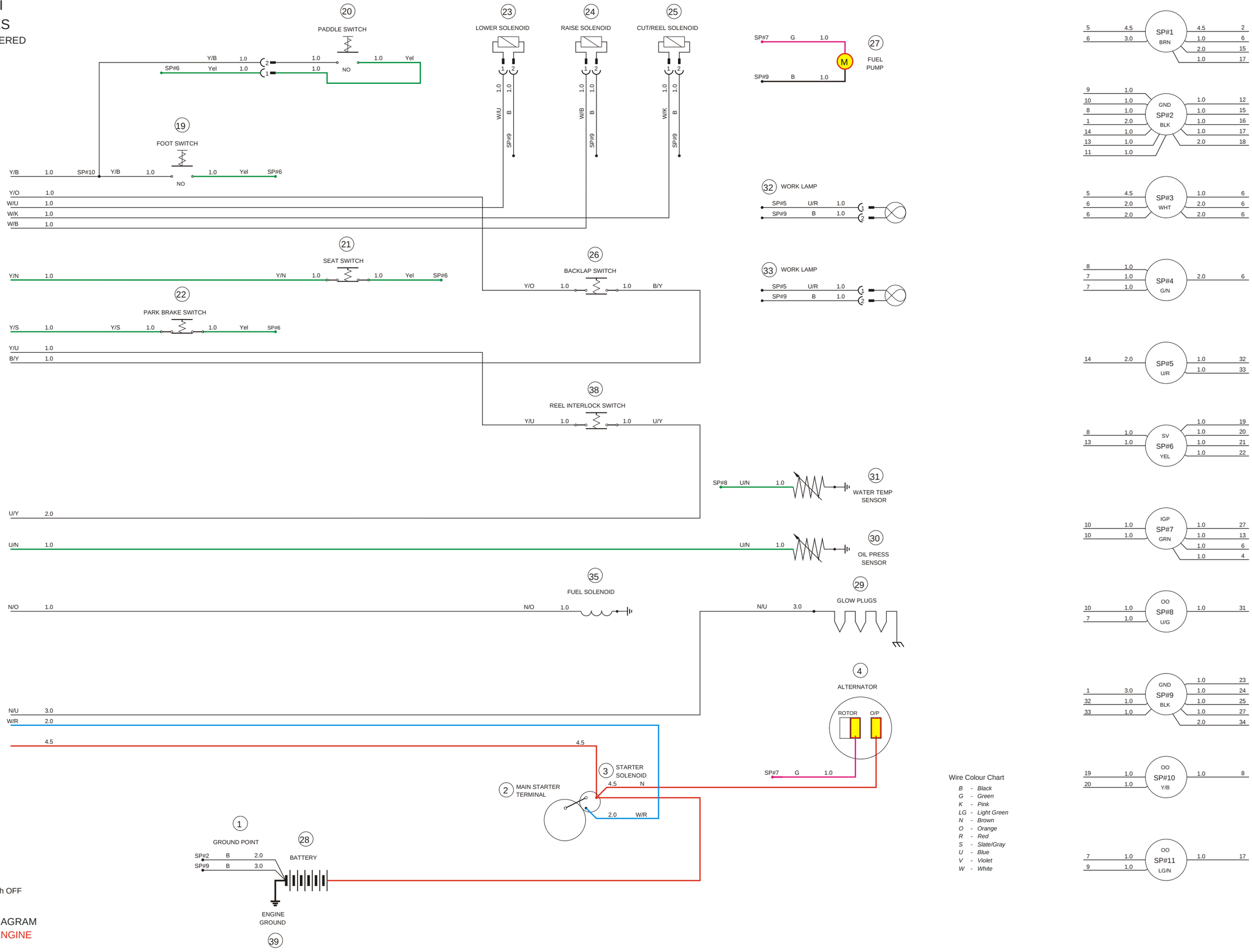


Y/B 1.0
Y/O 1.0
W/U 1.0
W/K 1.0
W/B 1.0
Y/N 1.0
Y/S 1.0
Y/U 1.0
B/Y 1.0
U/Y 1.0
U/N 1.0
N/O 1.0
N/U 3.0
W/R 2.0
4.5
SP#1

Seat Switch ON
Park Brake ON
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
CRANKING ENGINE
1.0

G-PLEX III
FN SERIES
DIESEL POWERED



Wire Colour Chart

B	-	Black
G	-	Green
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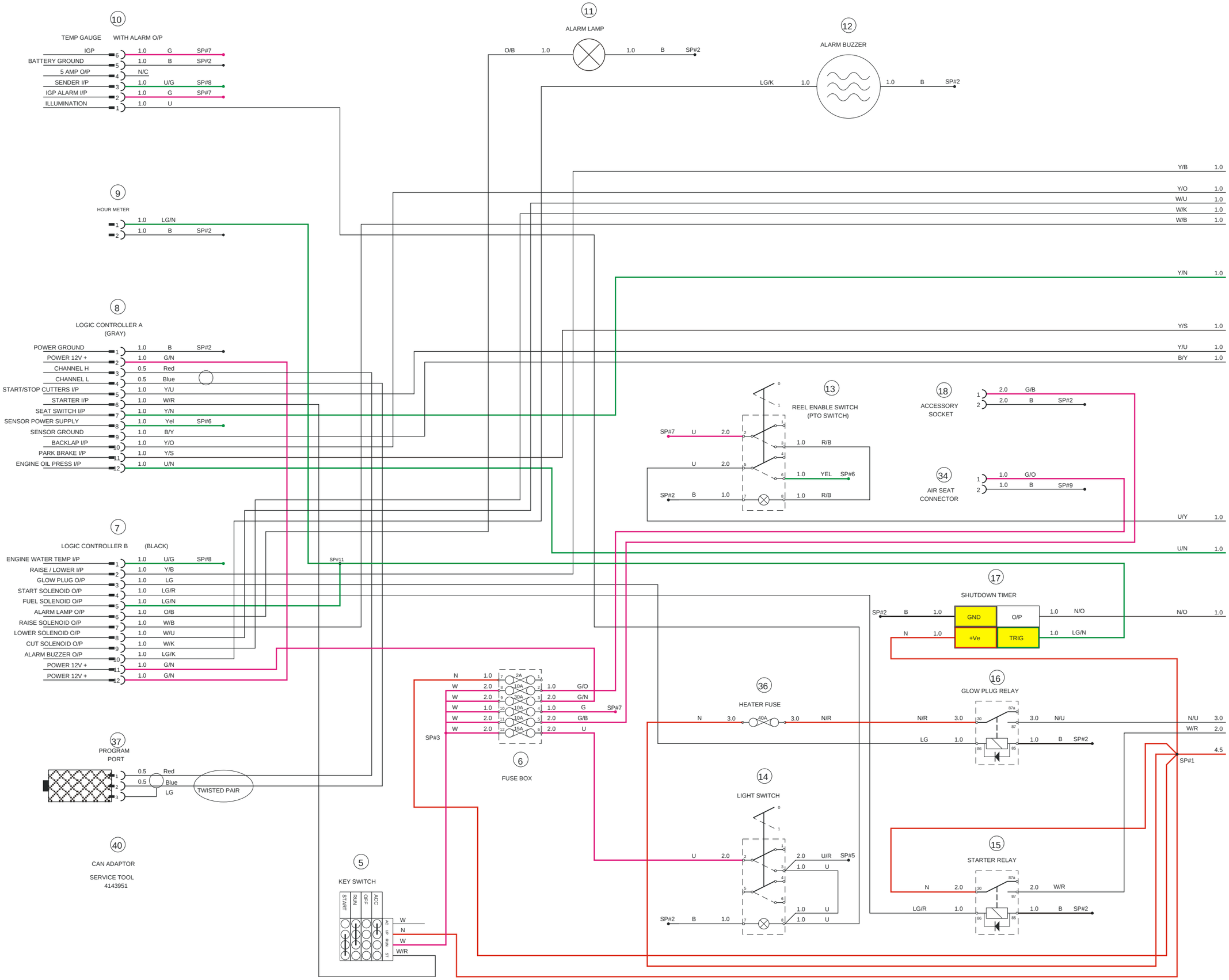
LG	-	Light Green
N	-	Brown
O	-	Orange
R	-	Red
S	-	Slate/Gray
U	-	Blue
V	-	Violet
W	-	White

Seat Switch ON
Park Brake ON
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
CRANKING ENGINE

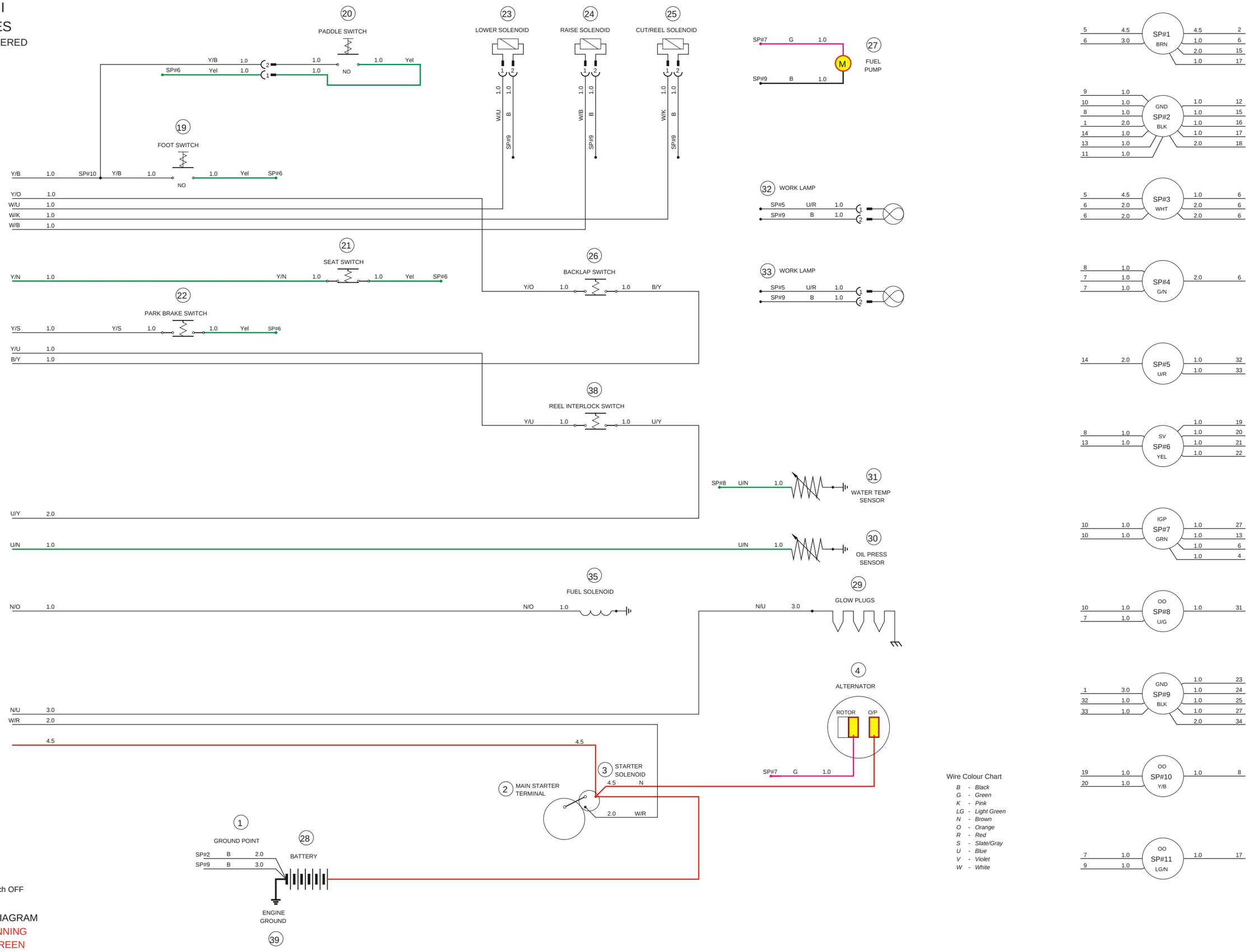
G-PLEX III
FN SERIES
DIESEL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
ENGINE RUNNING
DRIVE TO GREEN
1 of 2

G-PLEX III
FN SERIES
DIESEL POWERED



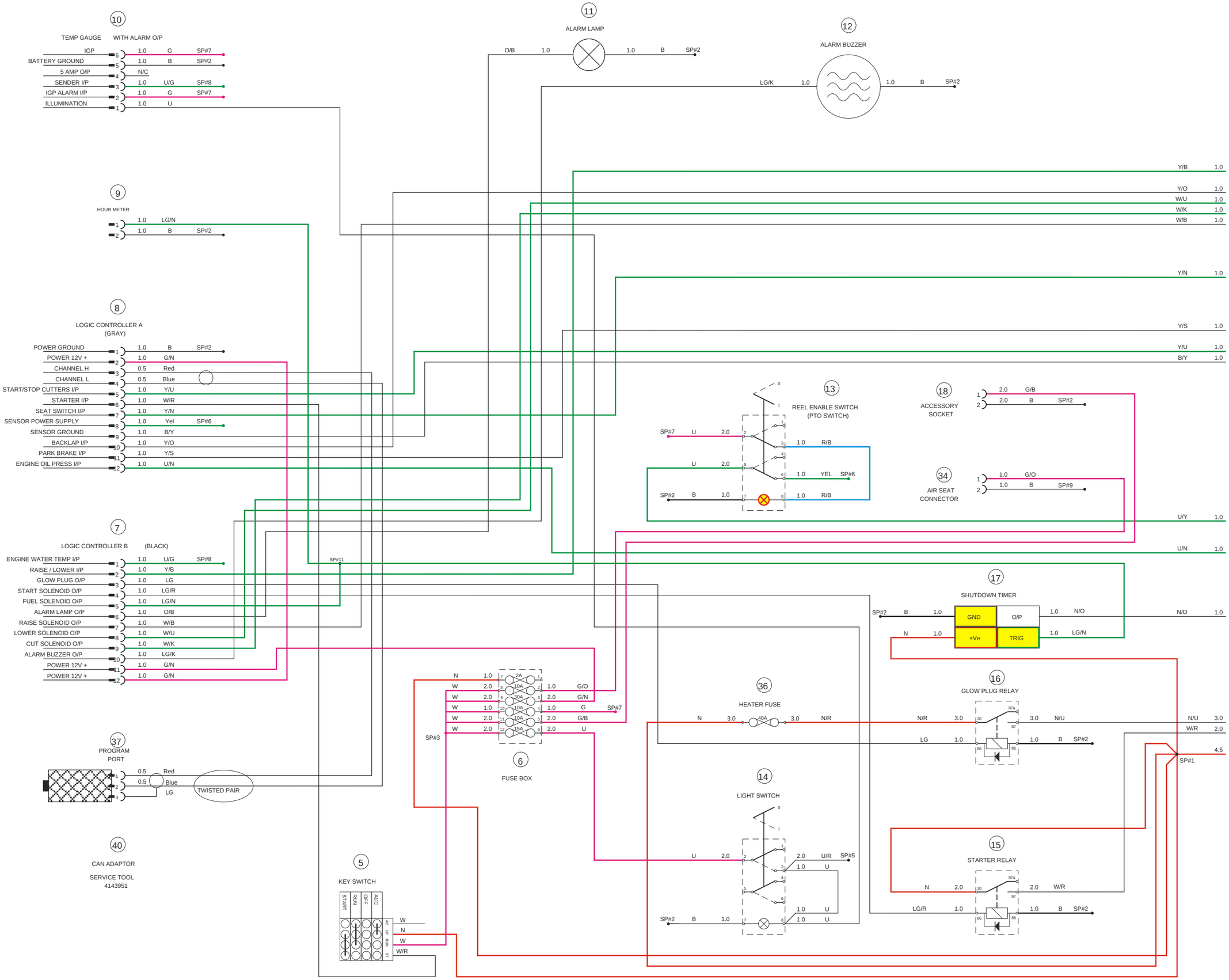
Seat Switch ON
Park Brake OFF
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
ENGINE RUNNING
DRIVE TO GREEN
2 of 2

Wire Colour Chart

- B - Black
- G - Green
- K - Pink
- LG - Light Green
- N - Brown
- O - Orange
- R - Red
- S - Slate/Gray
- U - Blue
- V - Violet
- W - White

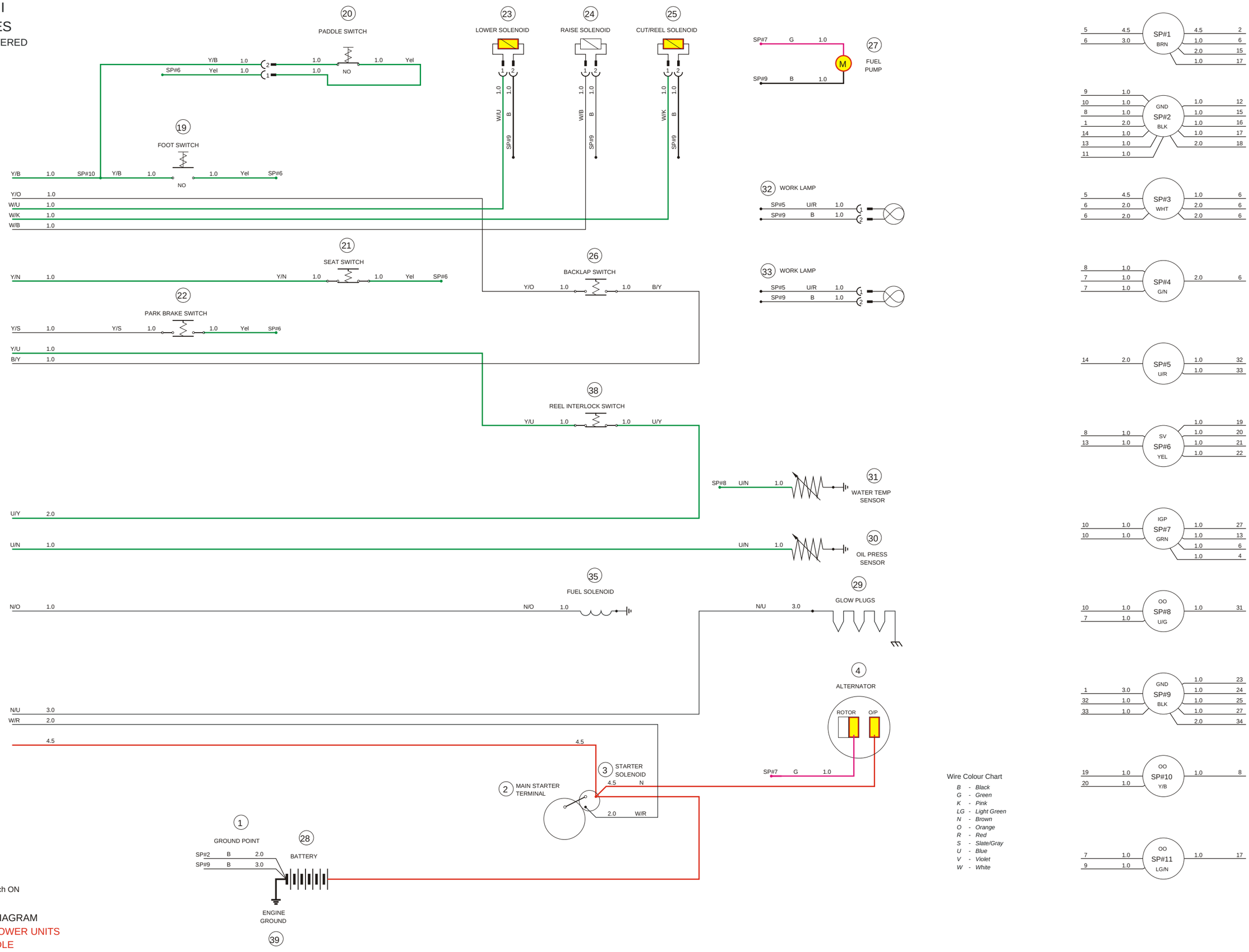
G-PLEX III
FN SERIES
DIESEL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - LOWER UNITS
USING PADDLE
1 of 2

G-PLEX III
FN SERIES
DIESEL POWERED



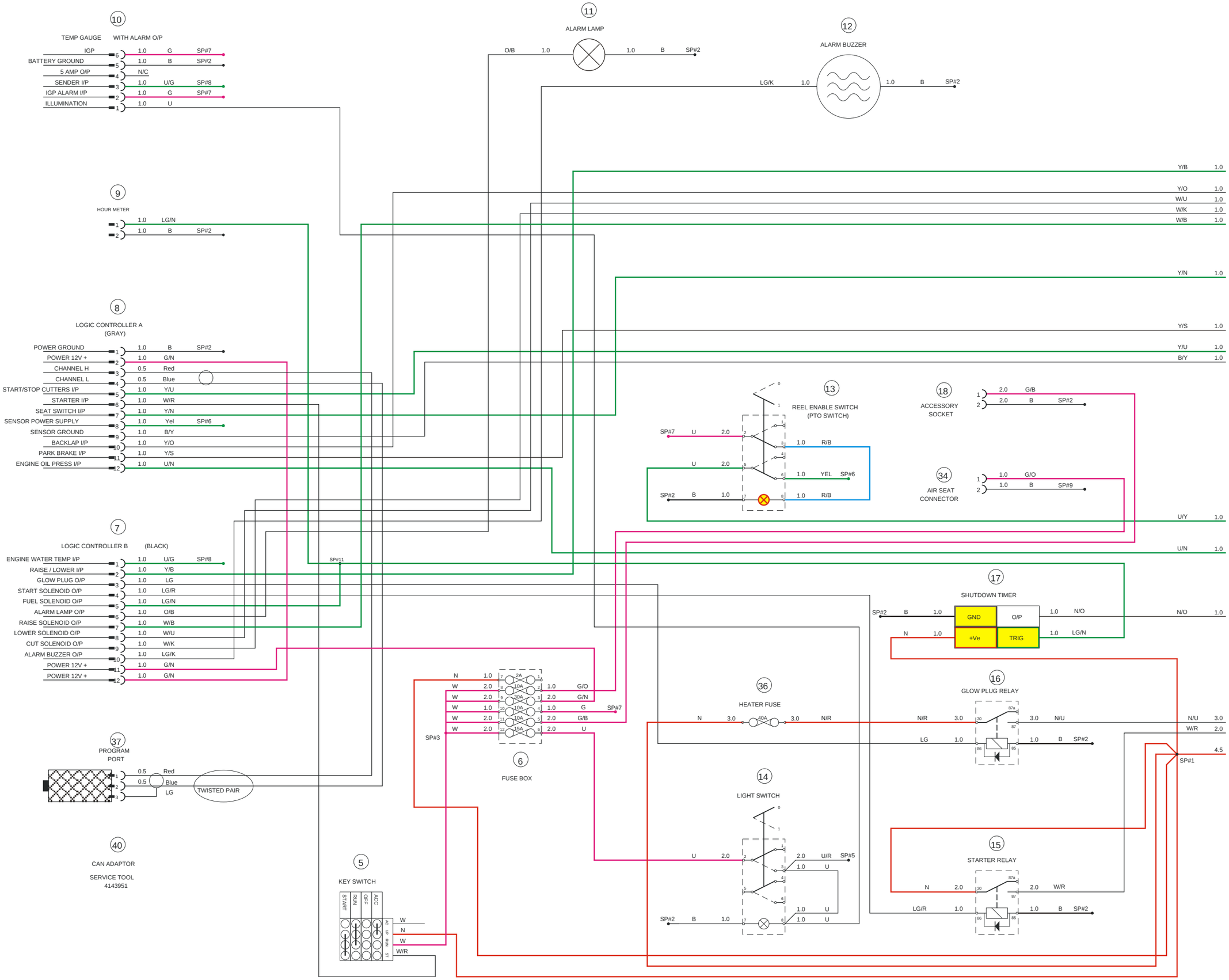
Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - LOWER UNITS
USING PADDLE
2 of 2

Wire Colour Chart

- *B - Black*
- *G - Green*
- *K - Pink*
- *LG - Light Green*
- *N - Brown*
- *O - Orange*
- *R - Red*
- *S - Slate/Gray*
- *U - Blue*
- *V - Violet*
- *W - White*

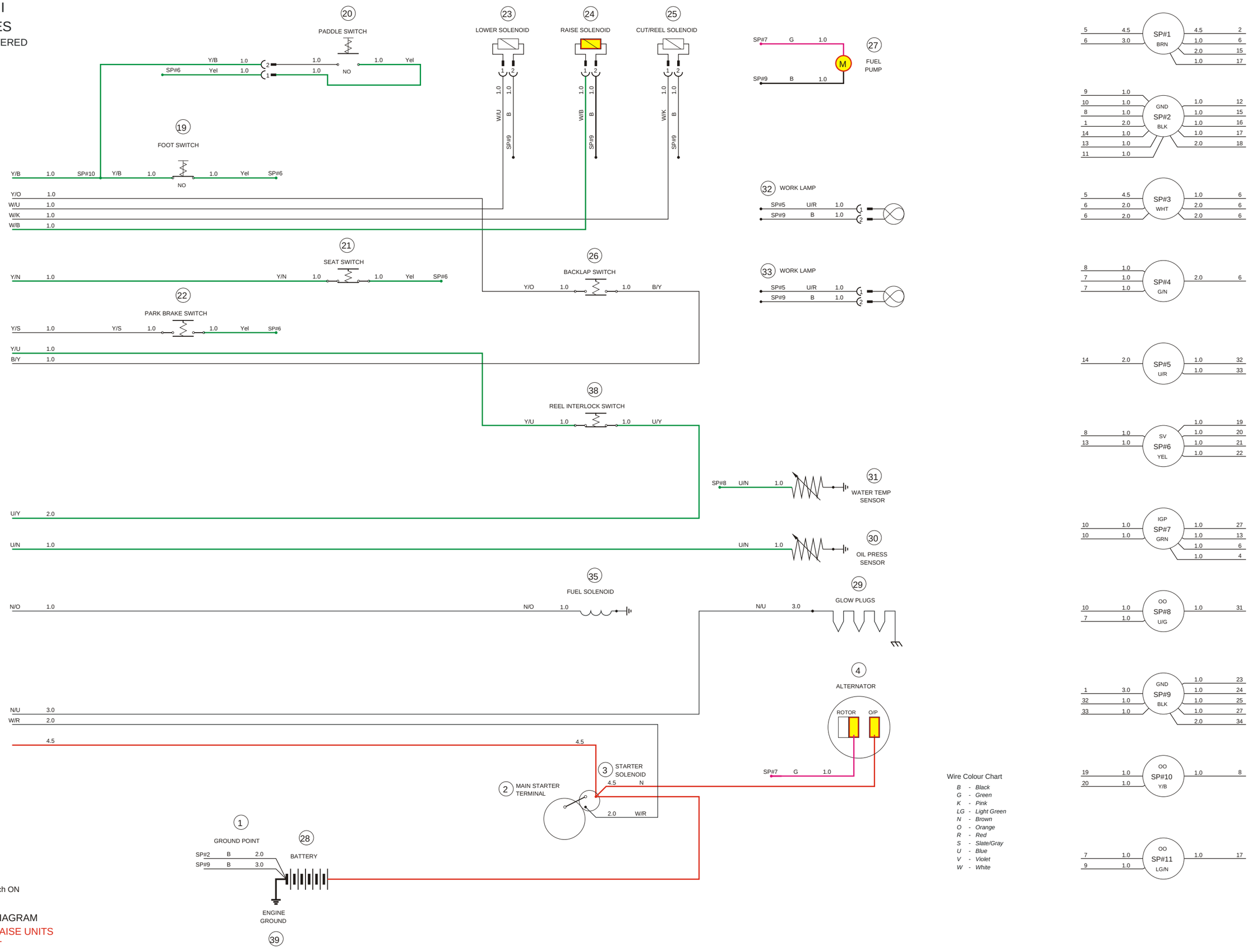
G-PLEX III
FN SERIES
DIESEL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - RAISE UNITS
USING FOOT
1 of 2

G-PLEX III
FN SERIES
DIESEL POWERED



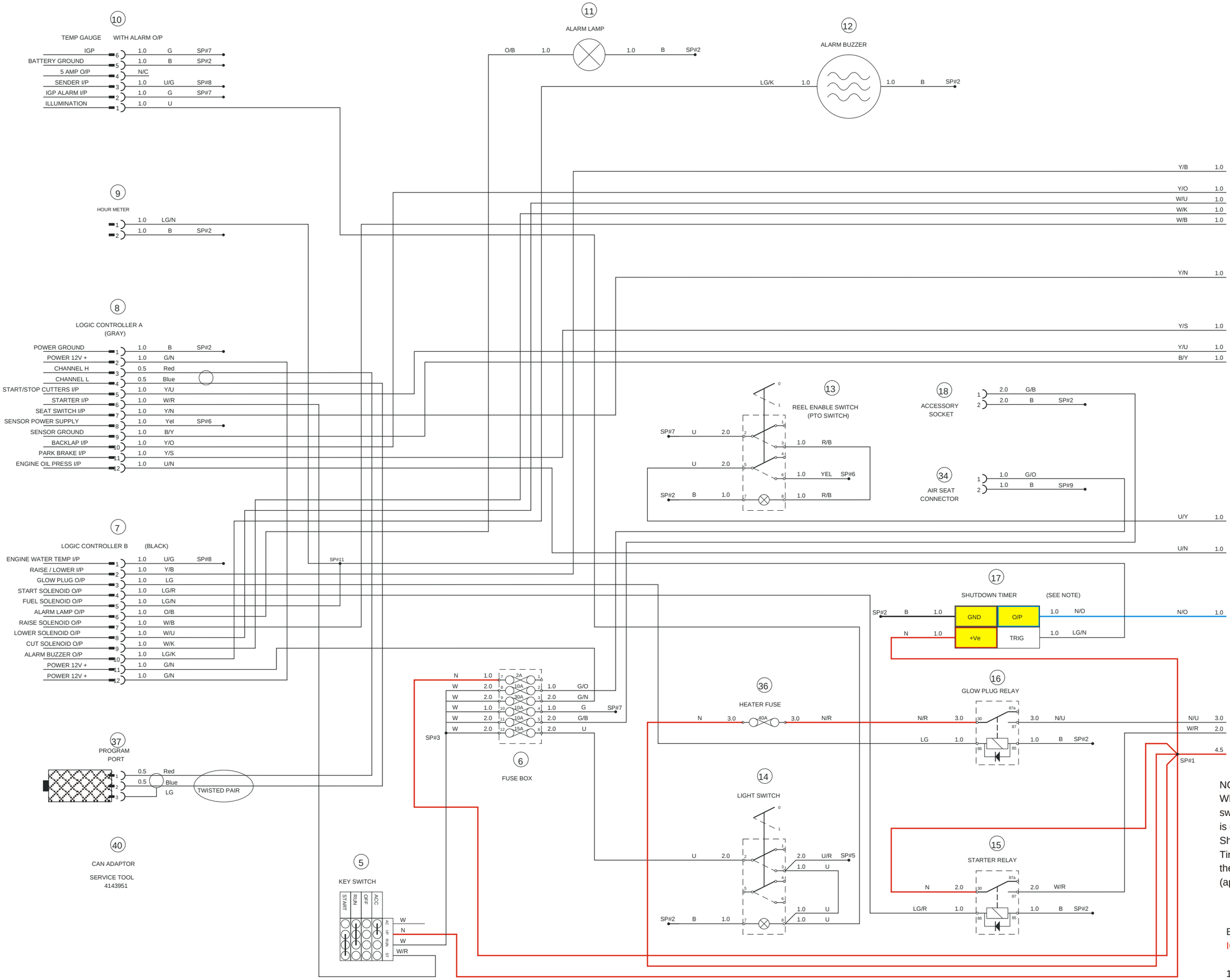
Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - RAISE UNITS
USING FOOT
2 of 2

Wire Colour Chart

- B - Black
- G - Green
- K - Pink
- LG - Light Green
- N - Brown
- O - Orange
- R - Red
- S - Slate/Gray
- U - Blue
- V - Violet
- W - White

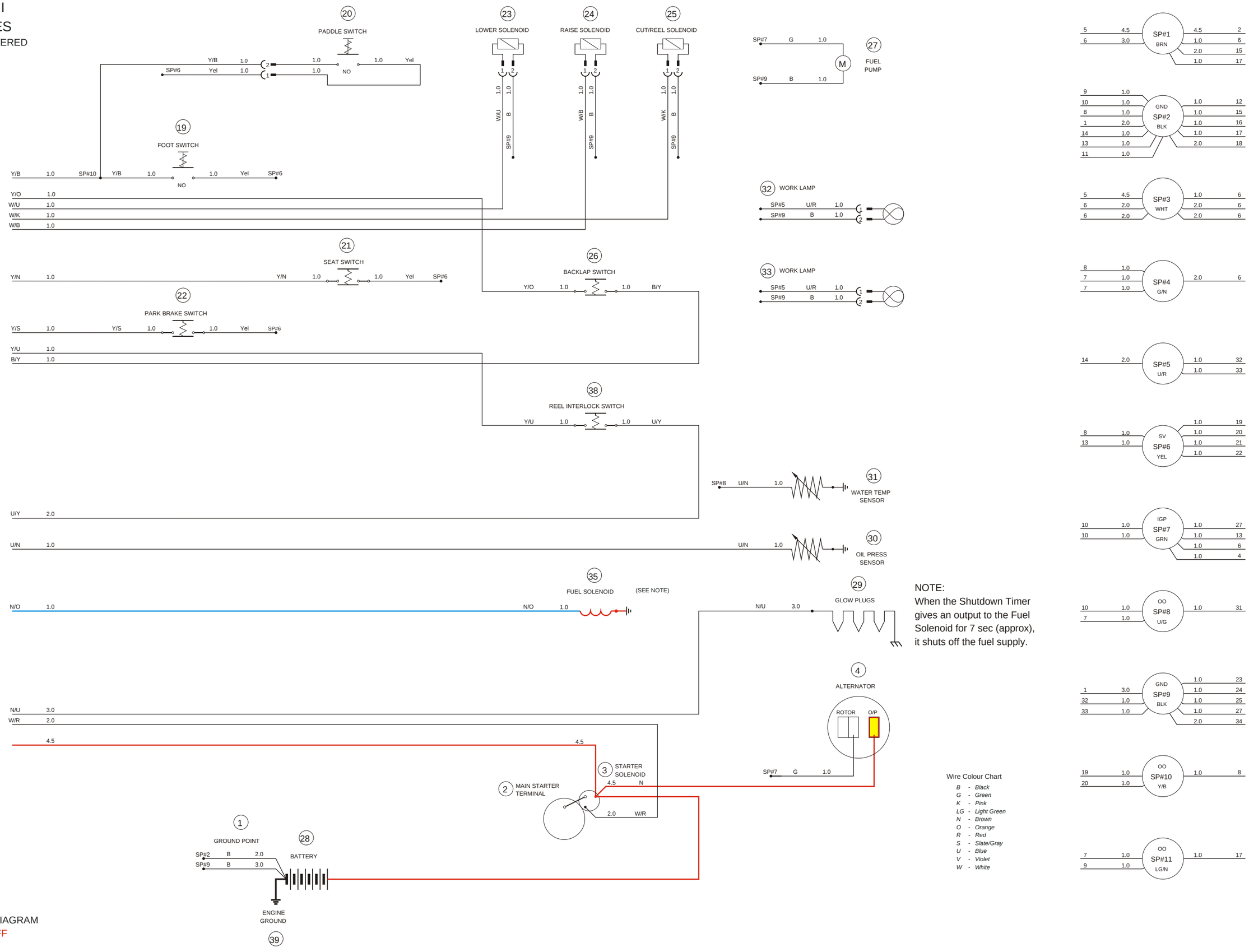
G-PLEX III
FN SERIES
DIESEL POWERED



NOTE:
When the Ignition Switch is switched off or a safety switch is opened, the input to the Shutdown Timer is cut and the Timer will operate the output to the Fuel Solenoid for 7 sec (approx), and then resets.

ELECTRIC DIAGRAM
IGNITION OFF

G-PLEX III
FN SERIES
DIESEL POWERED



NOTE:
When the Shutdown Timer gives an output to the Fuel Solenoid for 7 sec (approx), it shuts off the fuel supply.

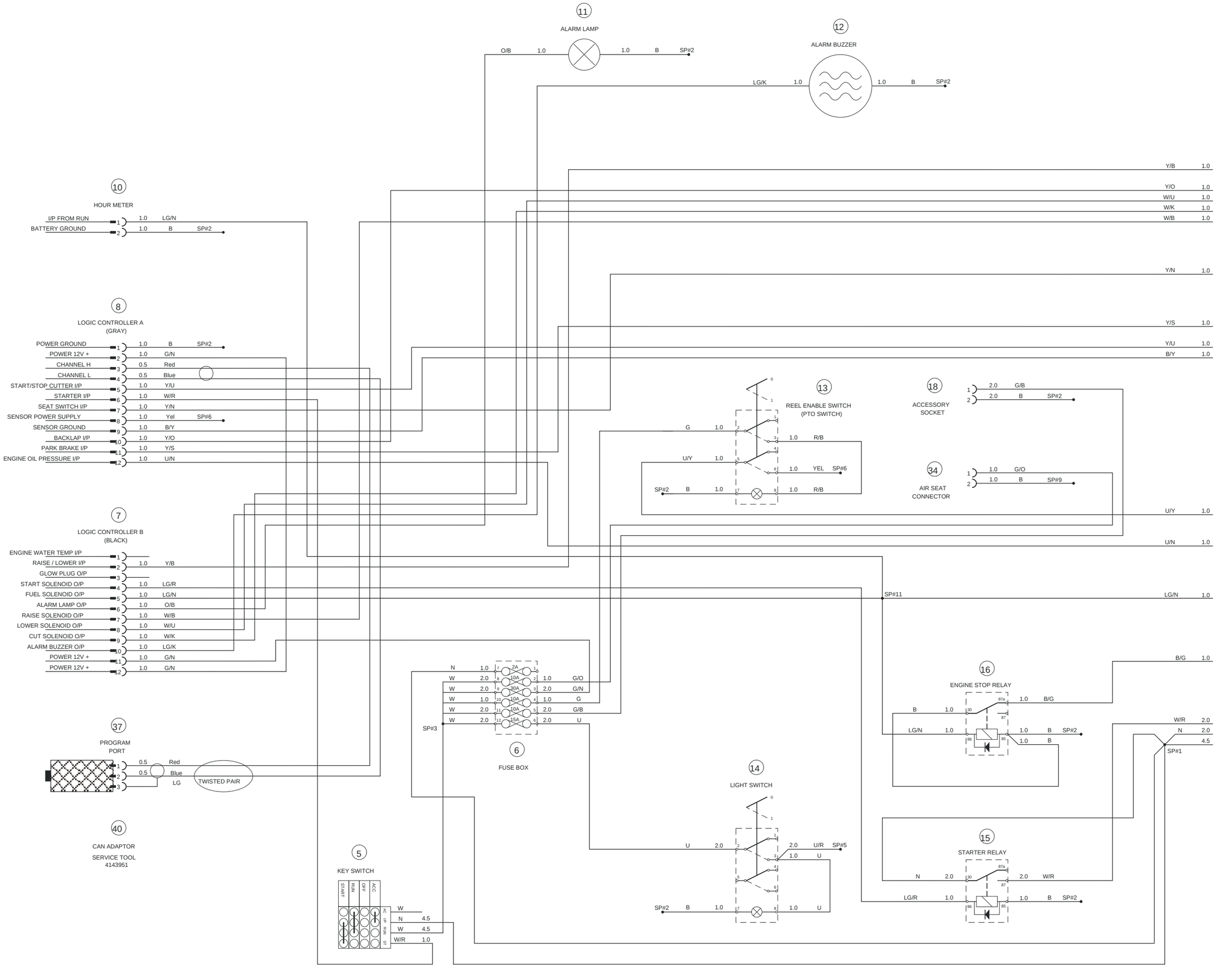
Wire Colour Chart

B	-	Black
G	-	Green
K	-	Pink
LG	-	Light Green
N	-	Brown
O	-	Orange
R	-	Red
S	-	Slate/Gray
U	-	Blue
V	-	Violet
W	-	White

ELECTRIC DIAGRAM
IGNITION OFF

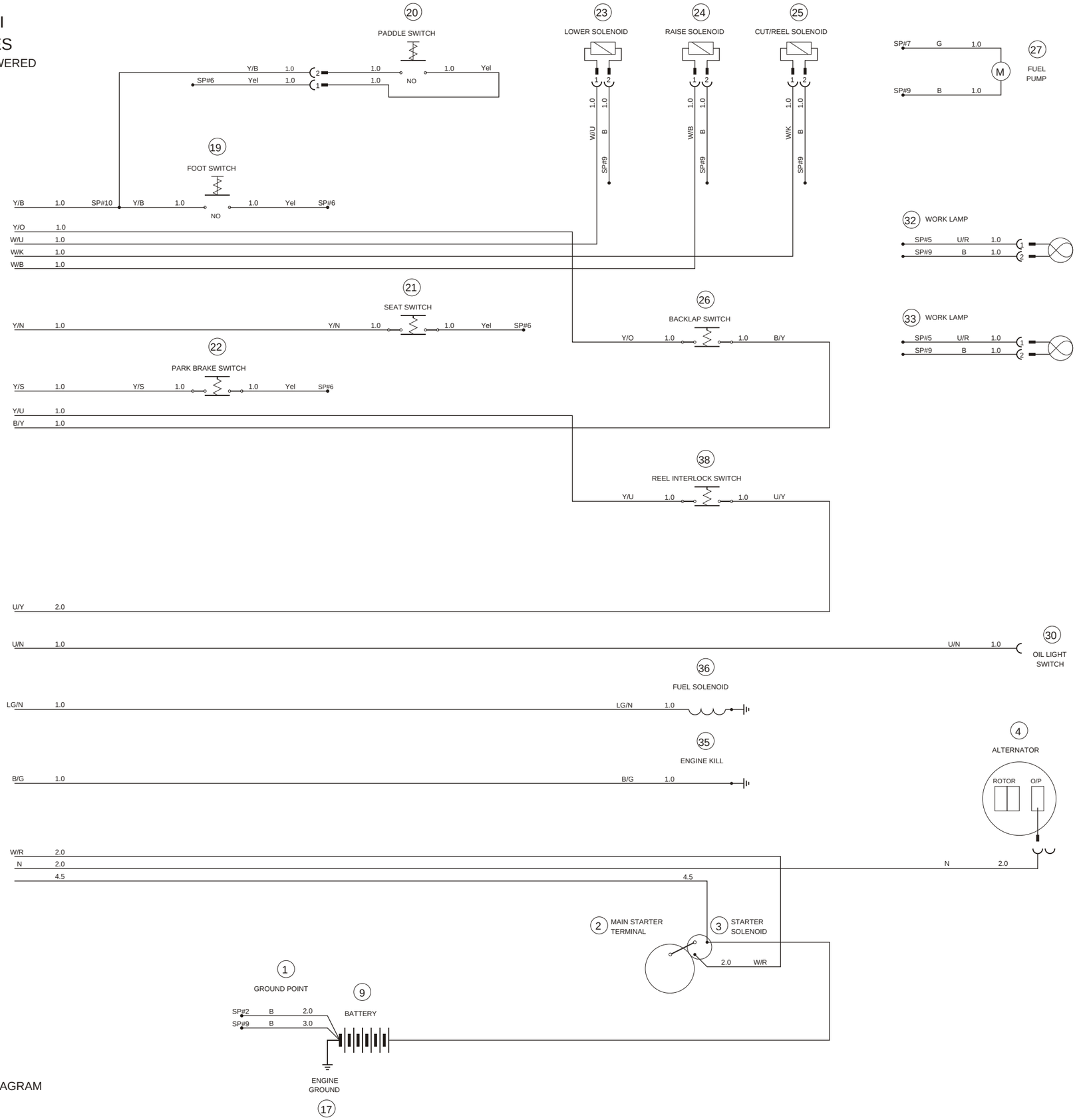
SECTION 10
ELECTRICAL SYSTEM
FJ Series - Petrol Engine

G-PLEX III
FN SERIES
PETROL POWERED



ELECTRIC DIAGRAM
MASTER

G-PLEX III
FN SERIES
PETROL POWERED



Wire Colour Chart

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- *LG - Light Green*
- *N - Brown*
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- *R - Red*
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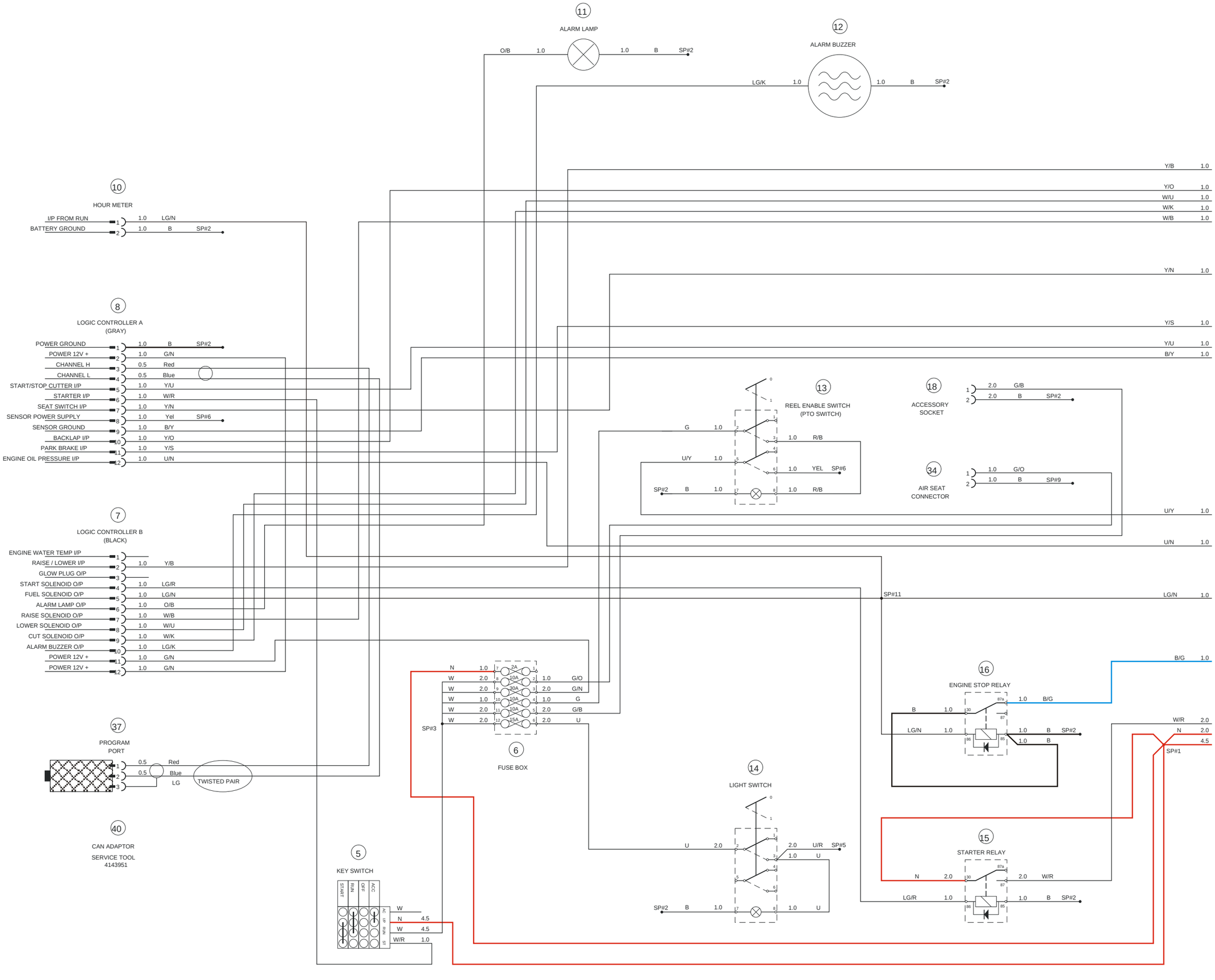
- *U - Blue*
- *V - Violet*
- *W - White*

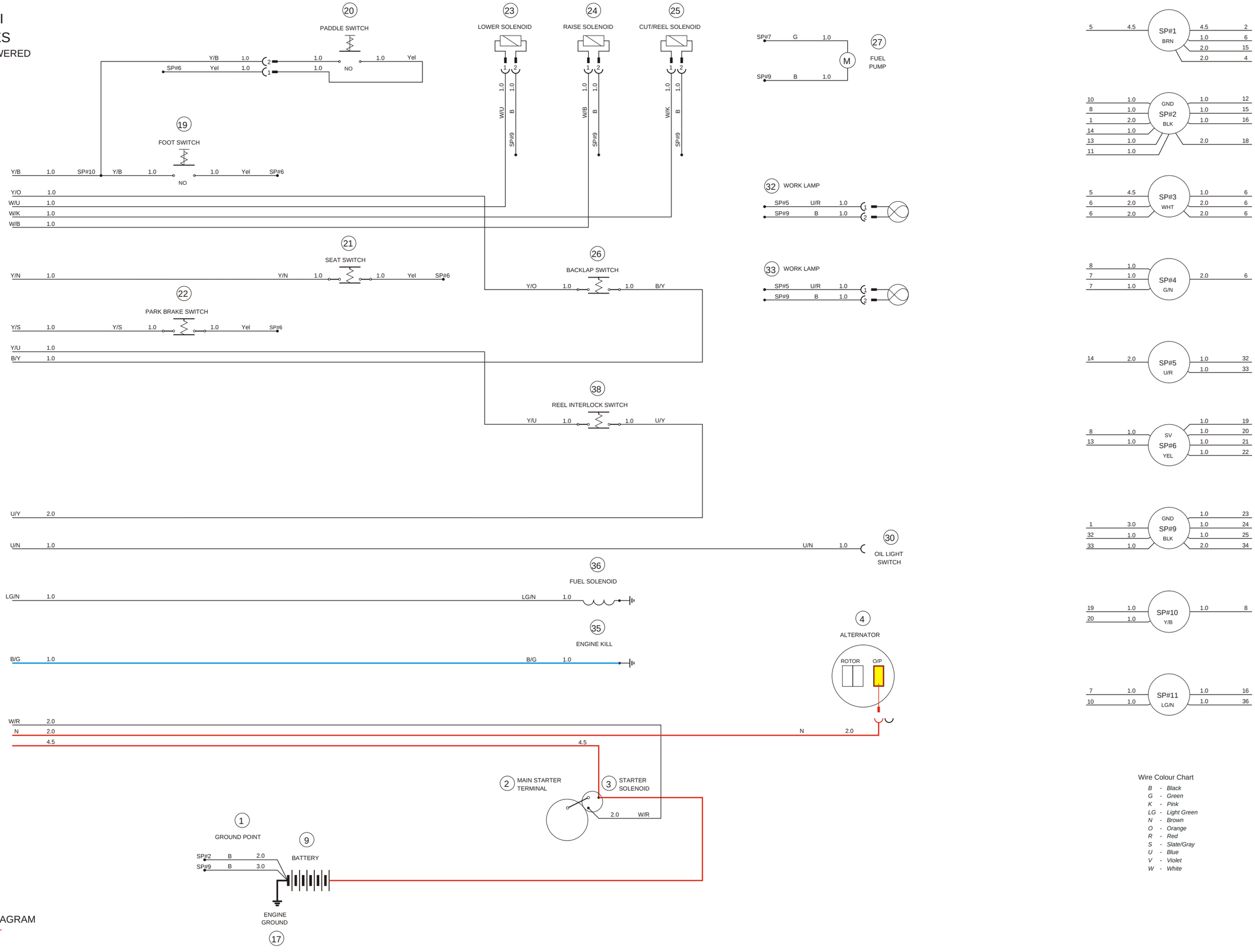
ELECTRIC DIAGRAM
MASTER

G-PLEX III
FN SERIES
PETROL POWERED



ELECTRIC DIAGRAM
HOT CIRCUIT

G-PLEX III
FN SERIES
PETROL POWERED



Wire Colour Chart

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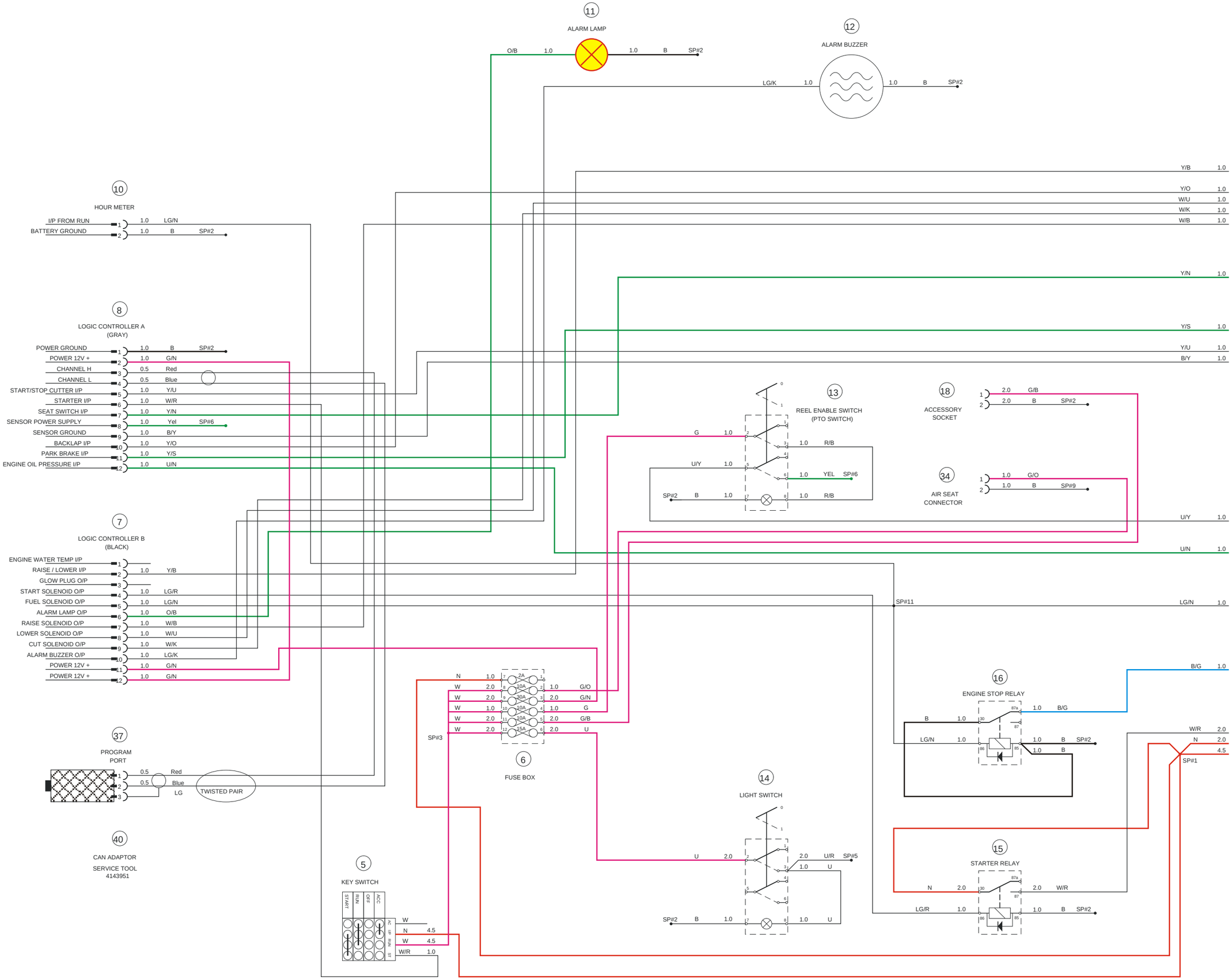
- *G - Green*
- *K - Pink*
- *LG - Light Green*
- *N - Brown*
- *O - Orange*
- *R - Red*
- *S - Slate/Gray*
- *U - Blue*
- *V - Violet*
- *W - White*

ELECTRIC DIAGRAM
HOT CIRCUIT

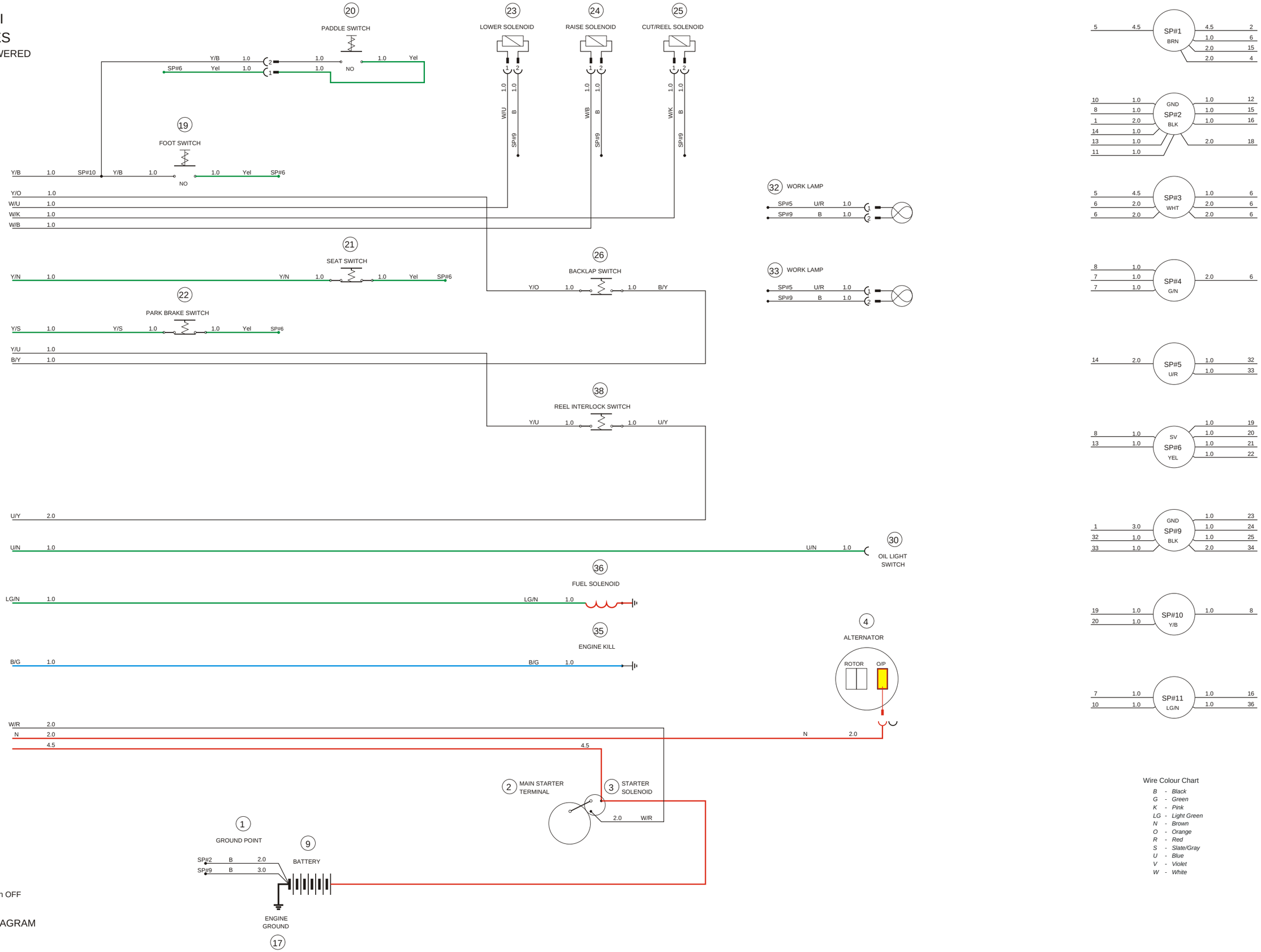
G-PLEX III
FN SERIES
PETROL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
IGNITION ON

G-PLEX III
FN SERIES
PETROL POWERED



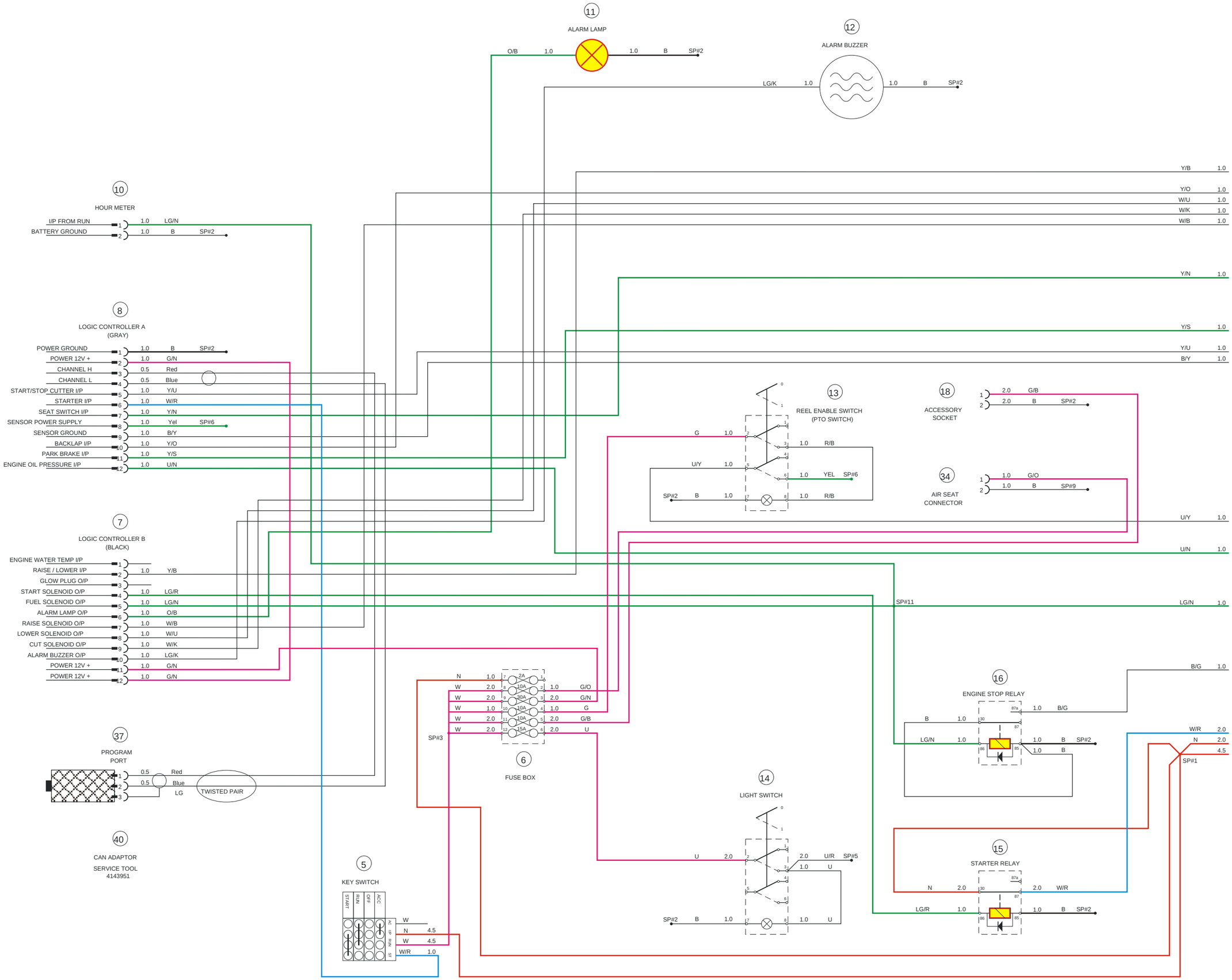
Seat Switch ON
Park Brake OFF
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
IGNITION ON

Wire Colour Chart

- *B - Black*
- *G - Green*
- *K - Pink*
- *LG - Light Green*
- *N - Brown*
- *O - Orange*
- *R - Red*
- *S - Slate/Gray*
- *U - Blue*
- *V - Violet*
- *W - White*

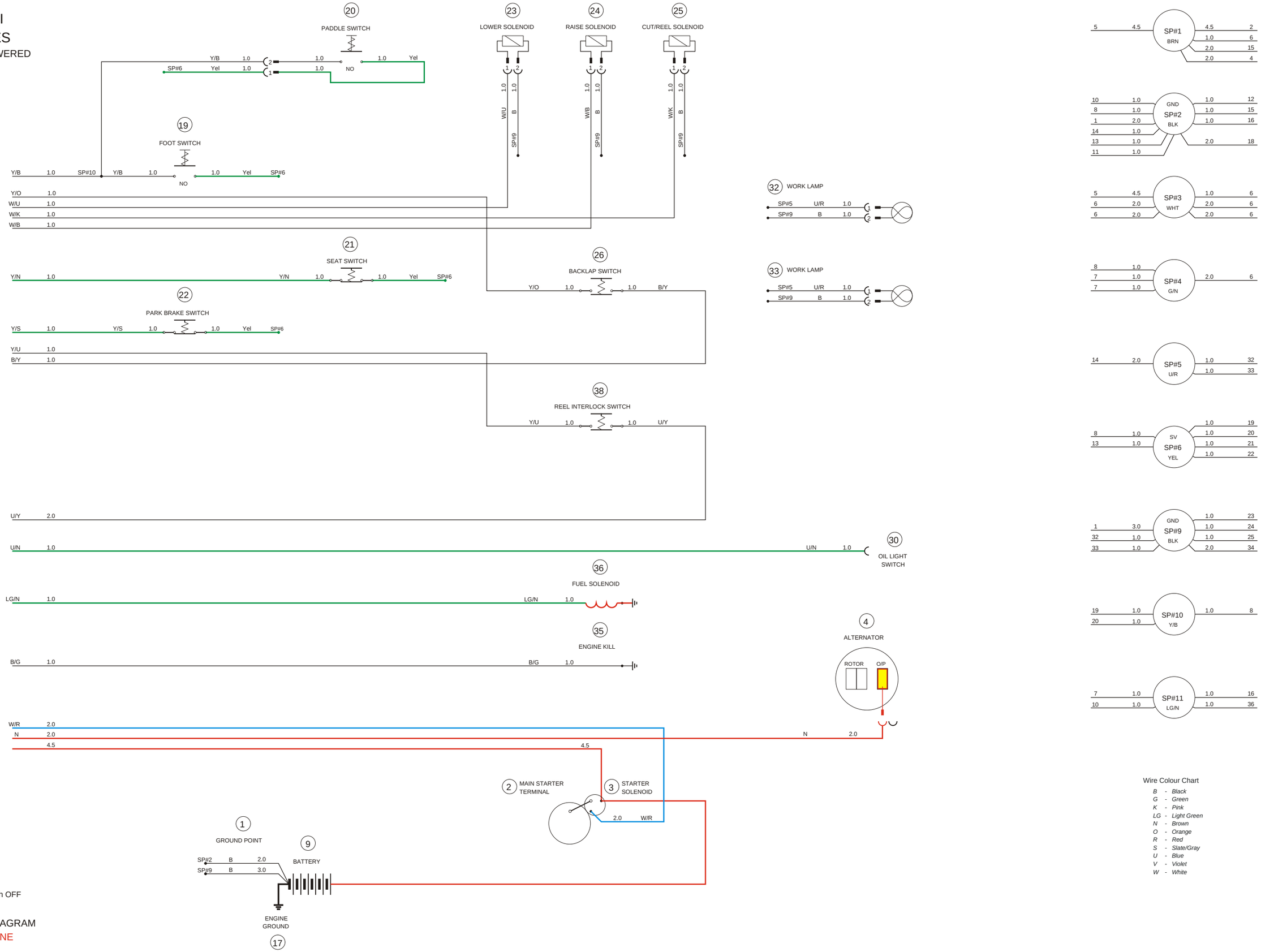
G-PLEX III
FN SERIES
PETROL POWERED



Seat Switch ON
Park Brake ON
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
CRANK ENGINE

G-PLEX III
FN SERIES
PETROL POWERED



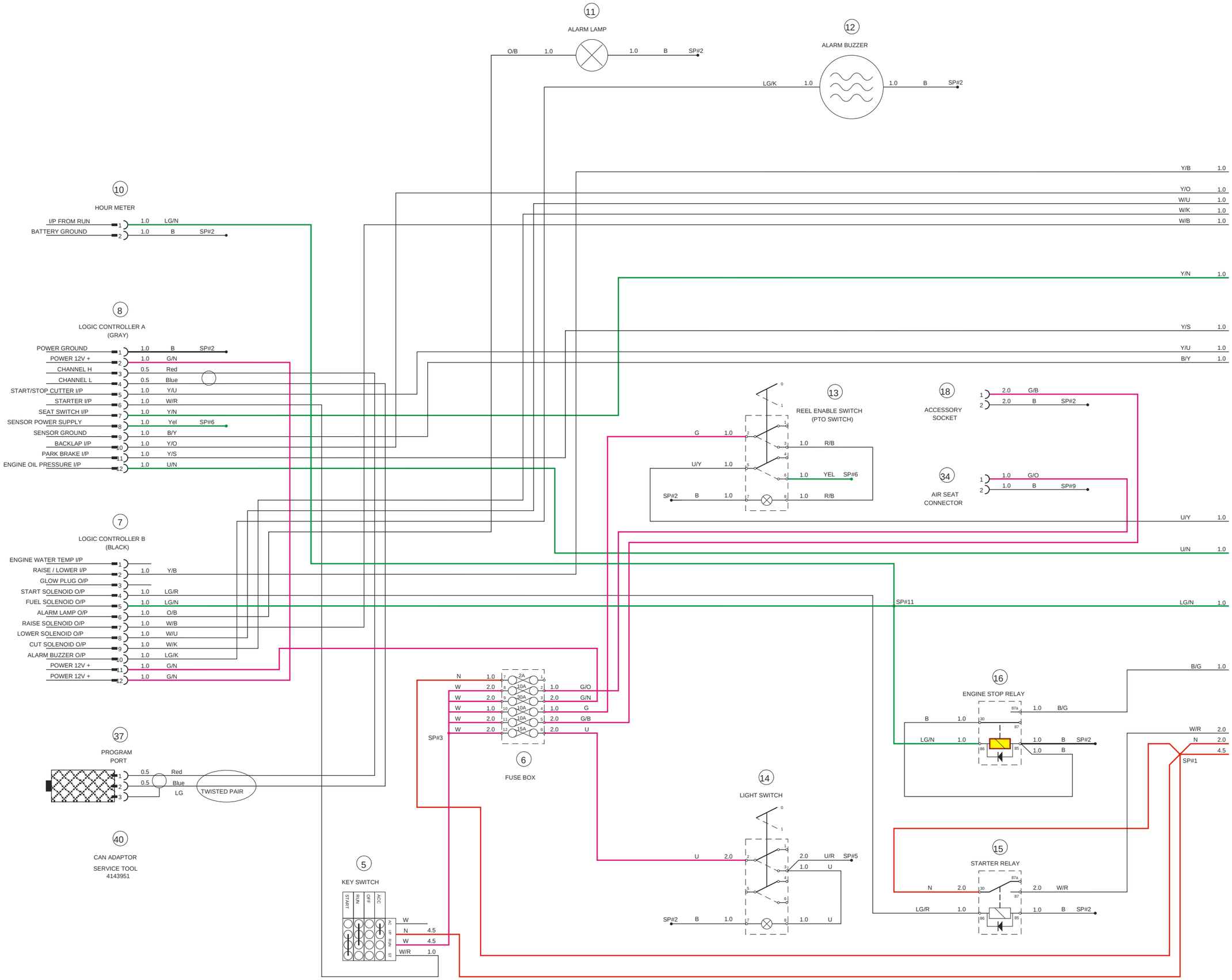
Wire Colour Chart

B	-	*Black*
G	-	*Green*
K	-	*Pink*
LG	-	*Light Green*
N	-	*Brown*
O	-	*Orange*
R	-	*Red*
S	-	*Slate/Gray*
U	-	*Blue*
V	-	*Violet*
W	-	*White*

Seat Switch ON
Park Brake ON
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
CRANK ENGINE

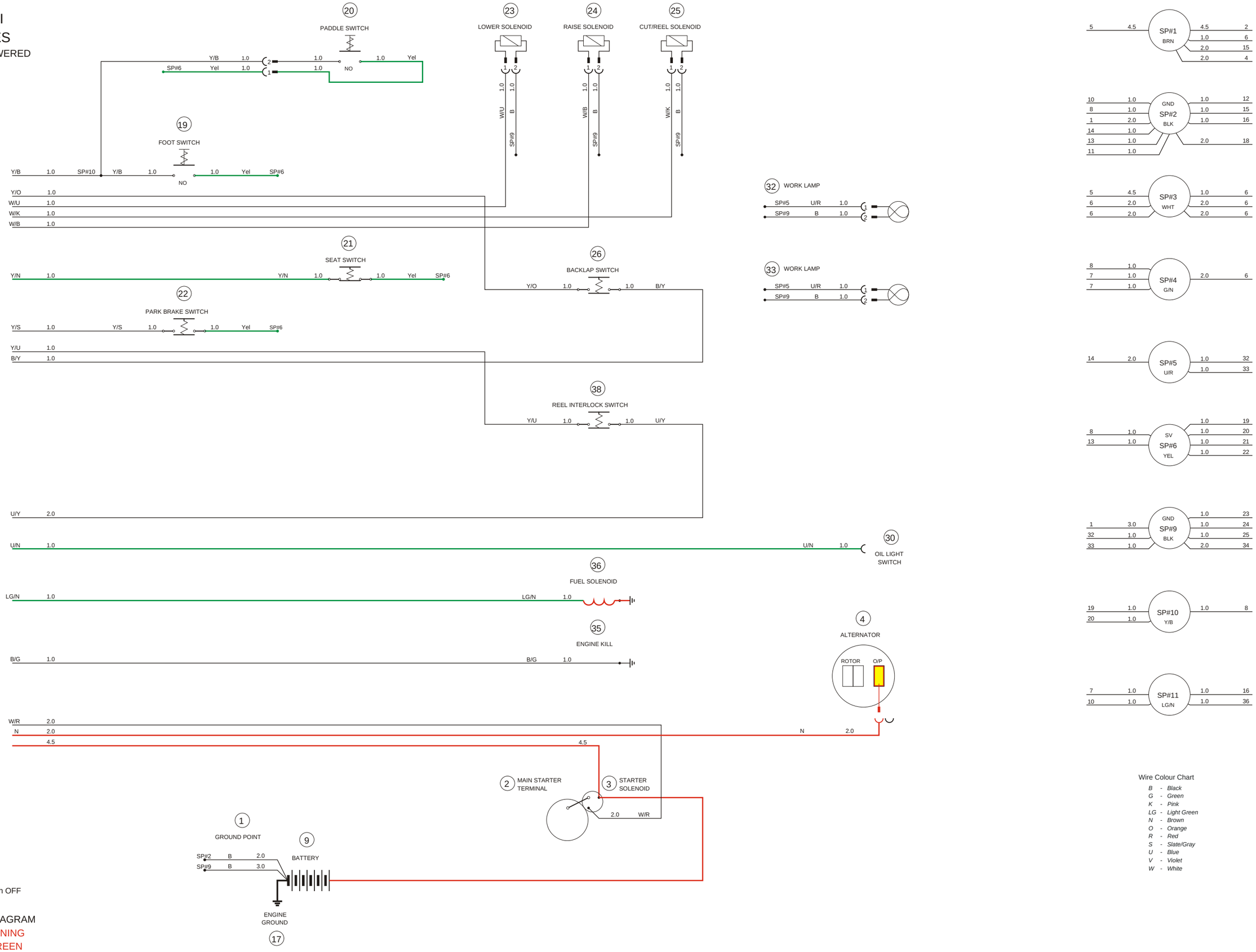
G-PLEX III
FN SERIES
PETROL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
ENGINE RUNNING
DRIVE TO GREEN
1 of 2

G-PLEX III
FN SERIES
PETROL POWERED



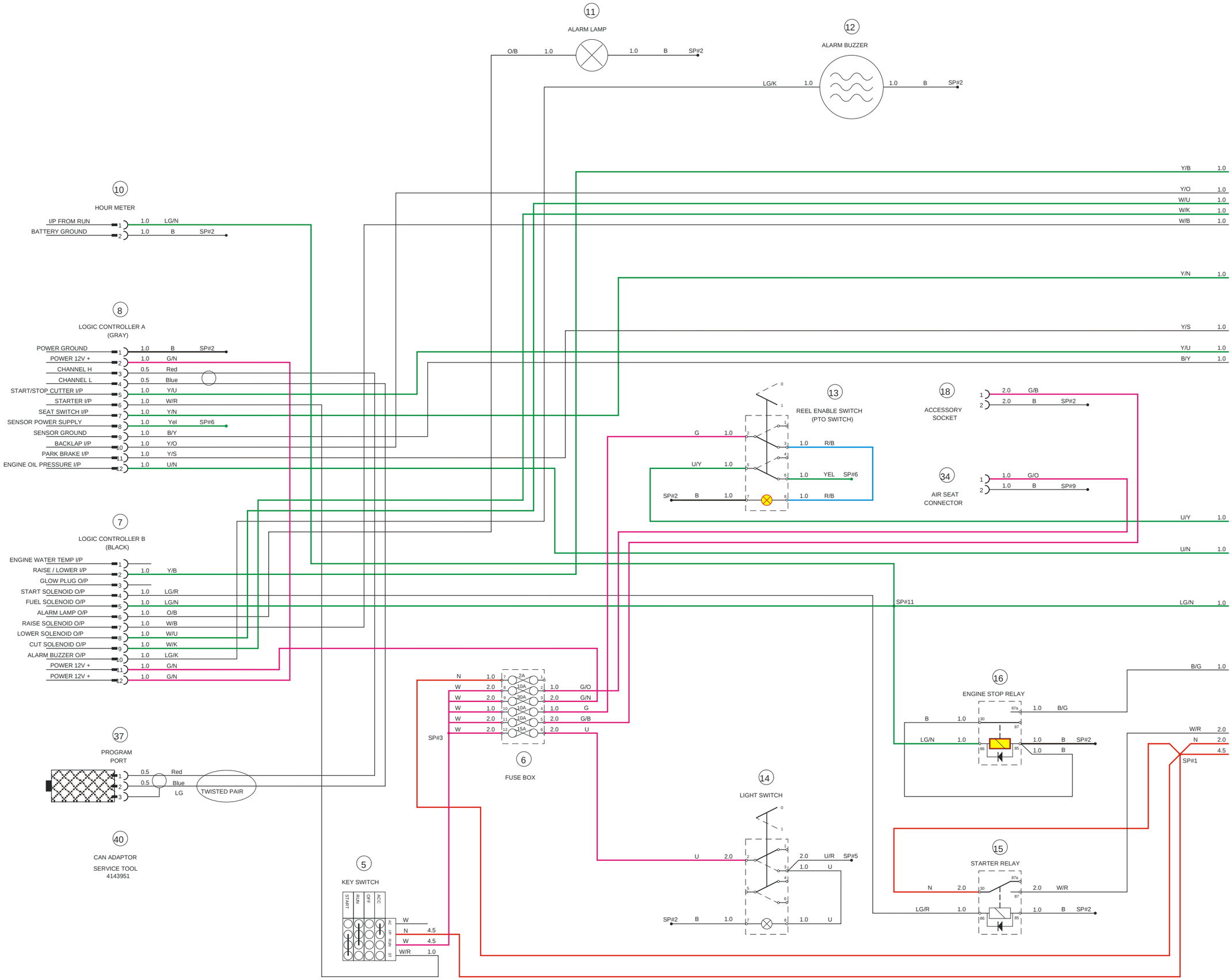
Seat Switch ON
Park Brake OFF
Reel (PTO) Switch OFF

ELECTRIC DIAGRAM
ENGINE RUNNING
DRIVE TO GREEN
2 of 2

Wire Colour Chart

B	-	*Black*
G	-	*Green*
K	-	*Pink*
LG	-	*Light Green*
N	-	*Brown*
O	-	*Orange*
R	-	*Red*
S	-	*Slate/Gray*
U	-	*Blue*
V	-	*Violet*
W	-	*White*

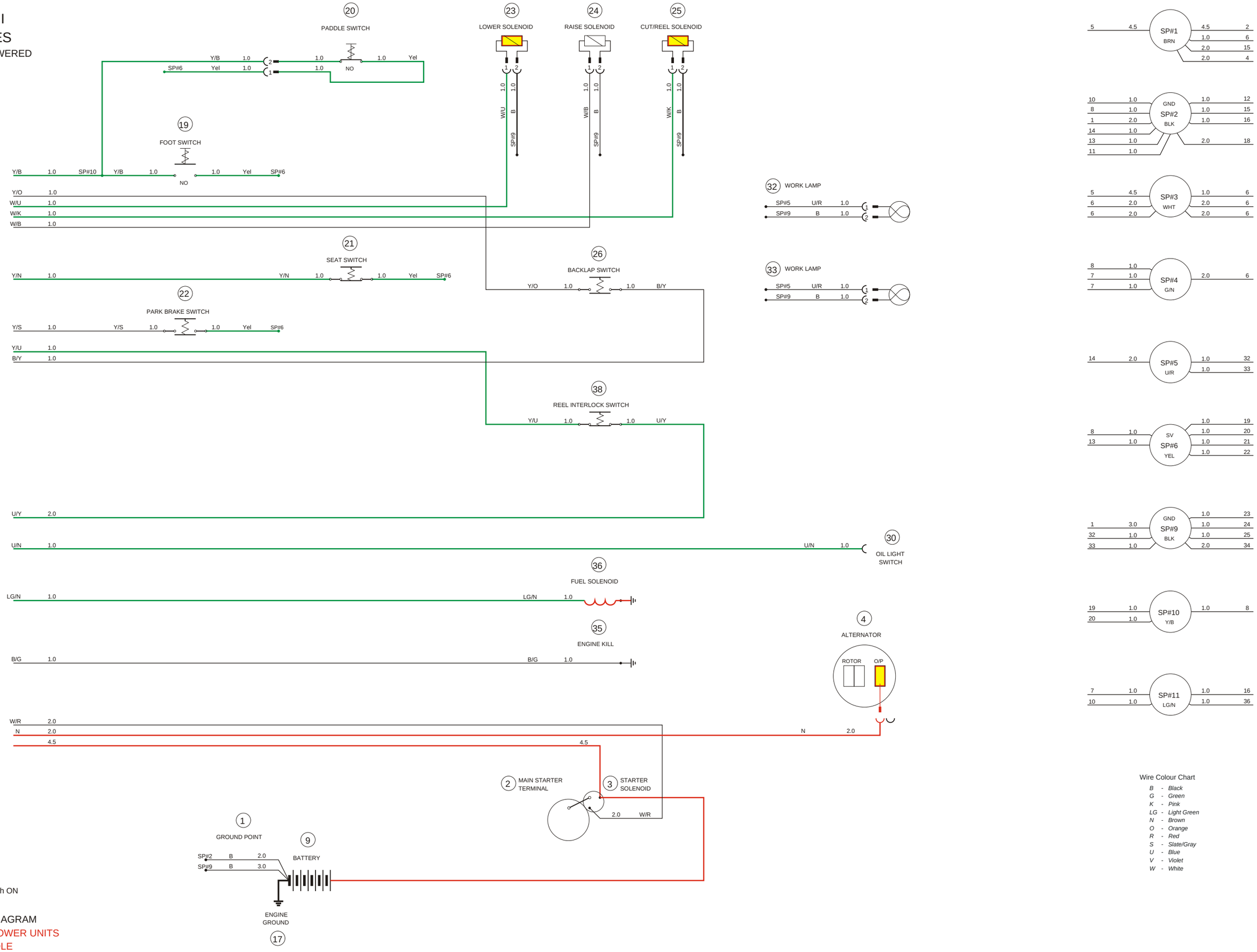
G-PLEX III
FN SERIES
PETROL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - LOWER UNITS
USING PADDLE
1 of 2

G-PLEX III
FN SERIES
PETROL POWERED



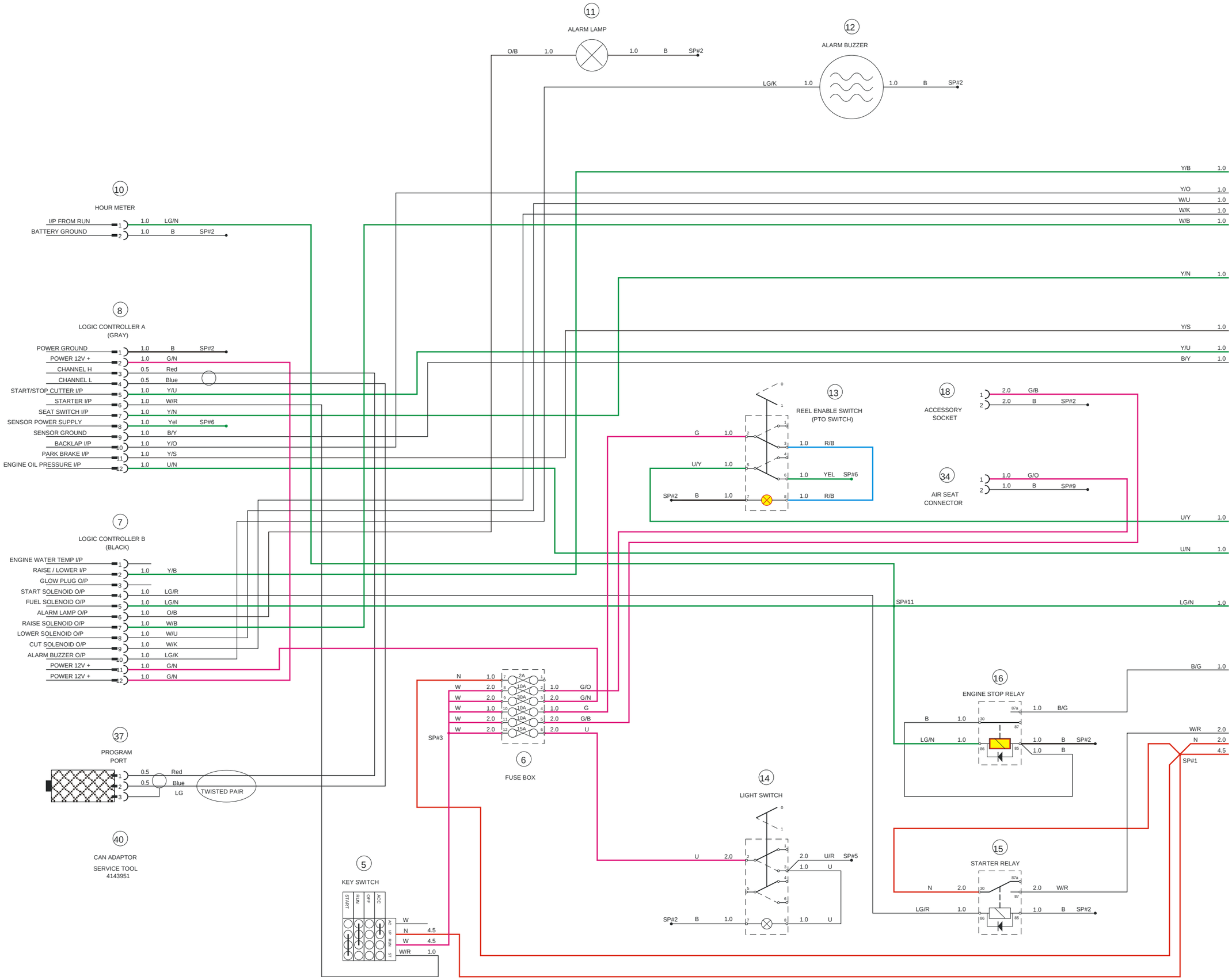
Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - LOWER UNITS
USING PADDLE
2 of 2

Wire Colour Chart

- B - Black
- G - Green
- K - Pink
- LG - Light Green
- N - Brown
- O - Orange
- R - Red
- S - Slate/Gray
- U - Blue
- V - Violet
- W - White

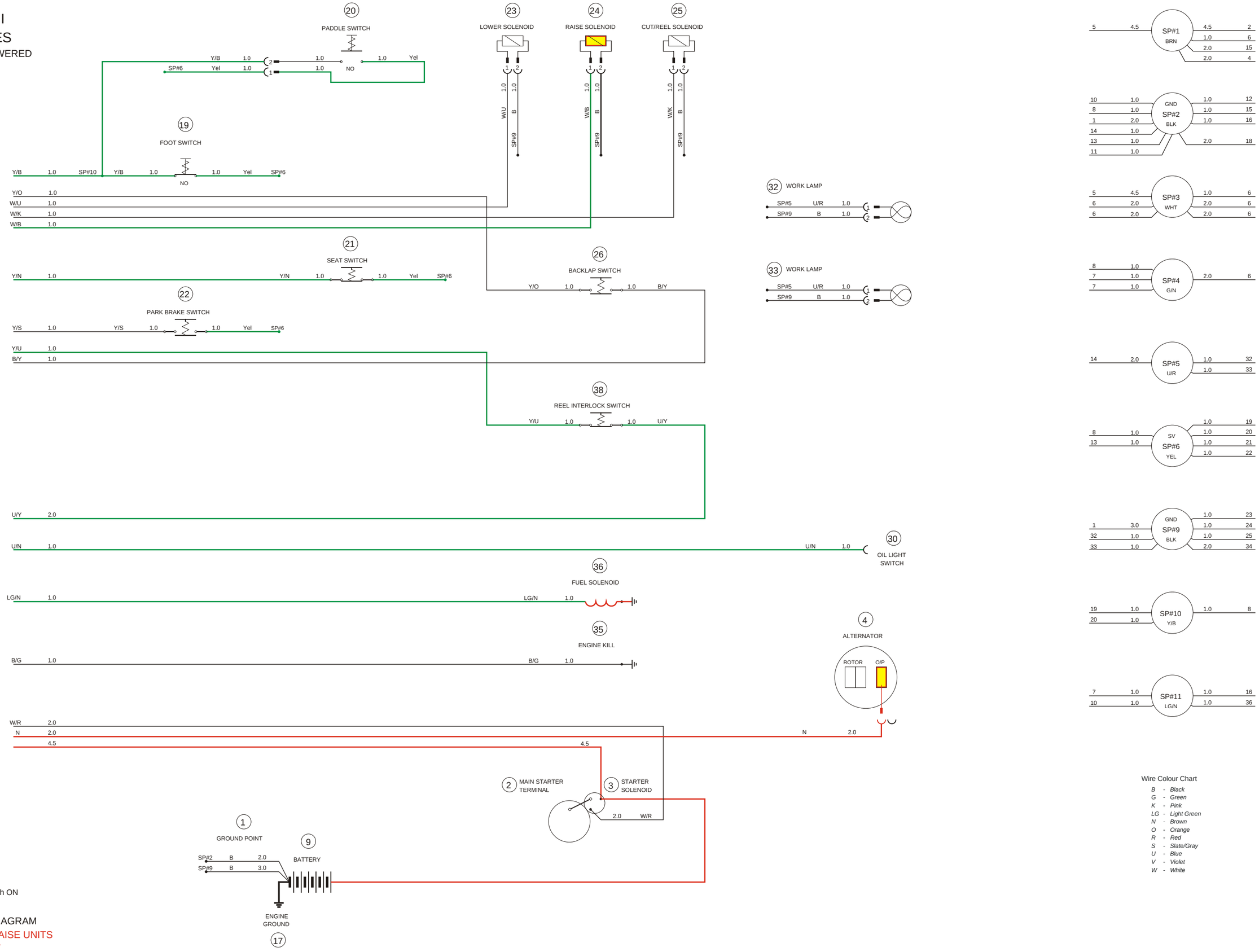
G-PLEX III
FN SERIES
PETROL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - RAISE UNITS
USING FOOT
1 of 2

G-PLEX III
FN SERIES
PETROL POWERED



Seat Switch ON
Park Brake OFF
Reel (PTO) Switch ON

ELECTRIC DIAGRAM
MOWING - RAISE UNITS
USING FOOT
2 of 2

Wire Colour Chart

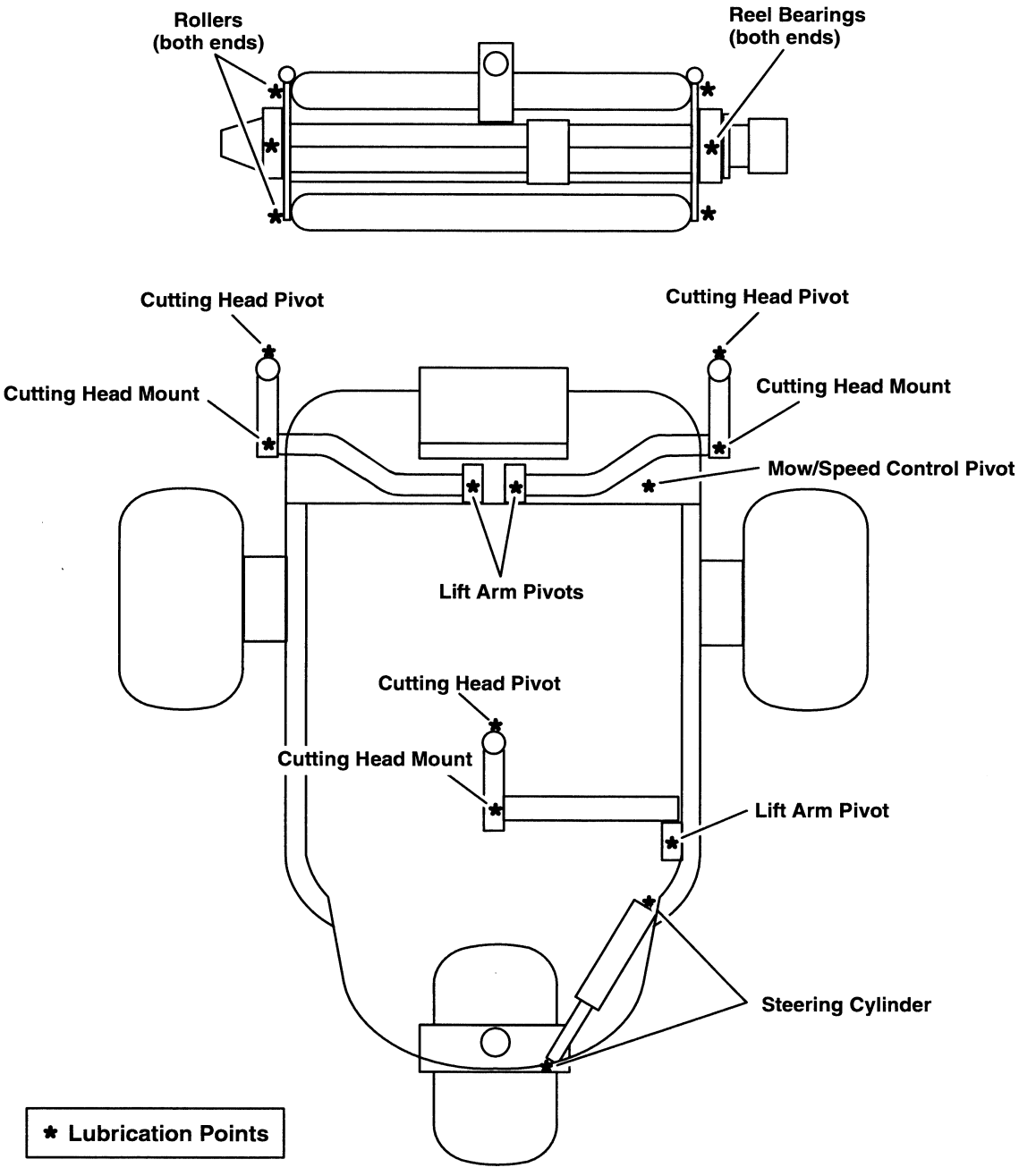
B	-	*Black*
G	-	*Green*
K	-	*Pink*
LG	-	*Light Green*
N	-	*Brown*
O	-	*Orange*
R	-	*Red*
S	-	*Slate/Gray*
U	-	*Blue*
V	-	*Violet*
W	-	*White*

SECTION 11
PREVENTATIVE MAINTENANCE

LUBE CHART

NOTICE

Lubricate sparingly with a lithium based lubricant. Excess lubrication may drop from unit and cause turf damage.



SECTION 15
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Material Up-date Sheet

Revision	Date	Author	Description of Change