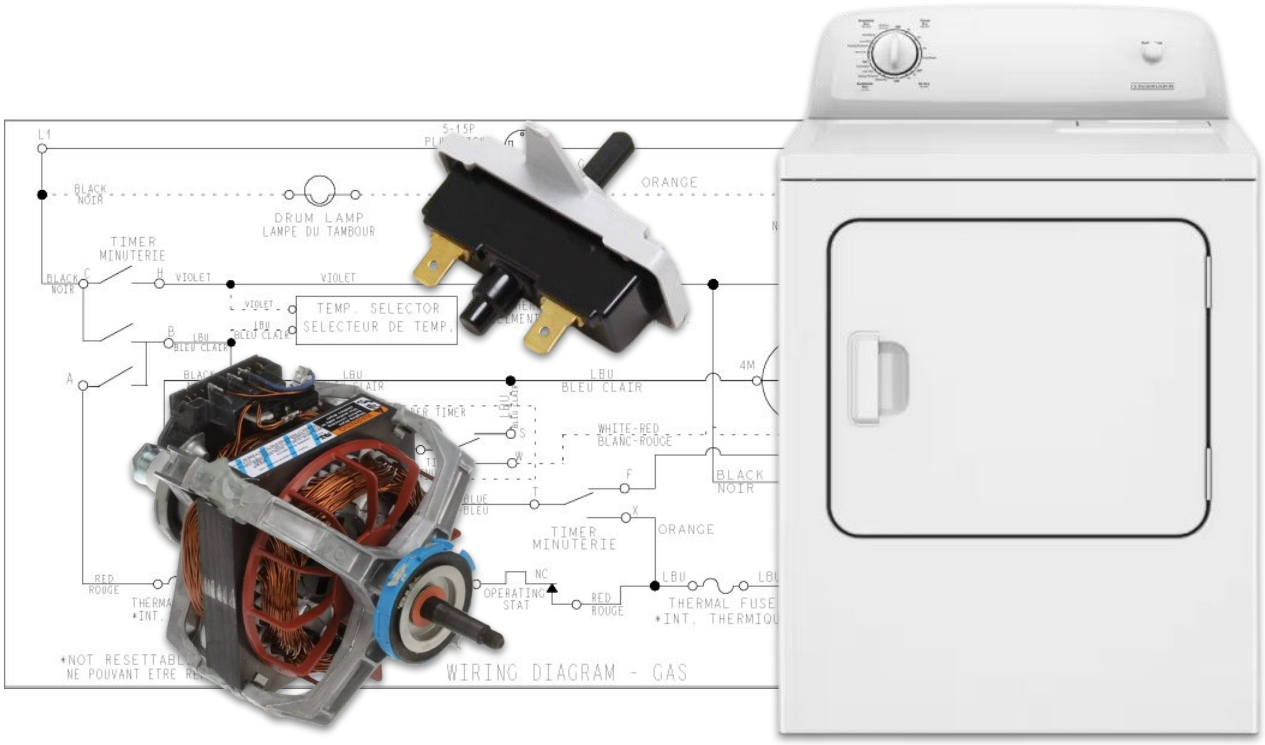
DRYER PTS AND MOTOR OPERATION

Overview

- Basic Electricity
- PTS Switch
- Motor Circuit
- Diagnostics

NGD4655EW0



Dryer PTS Switch

Basic Electricity - Motor Circuit

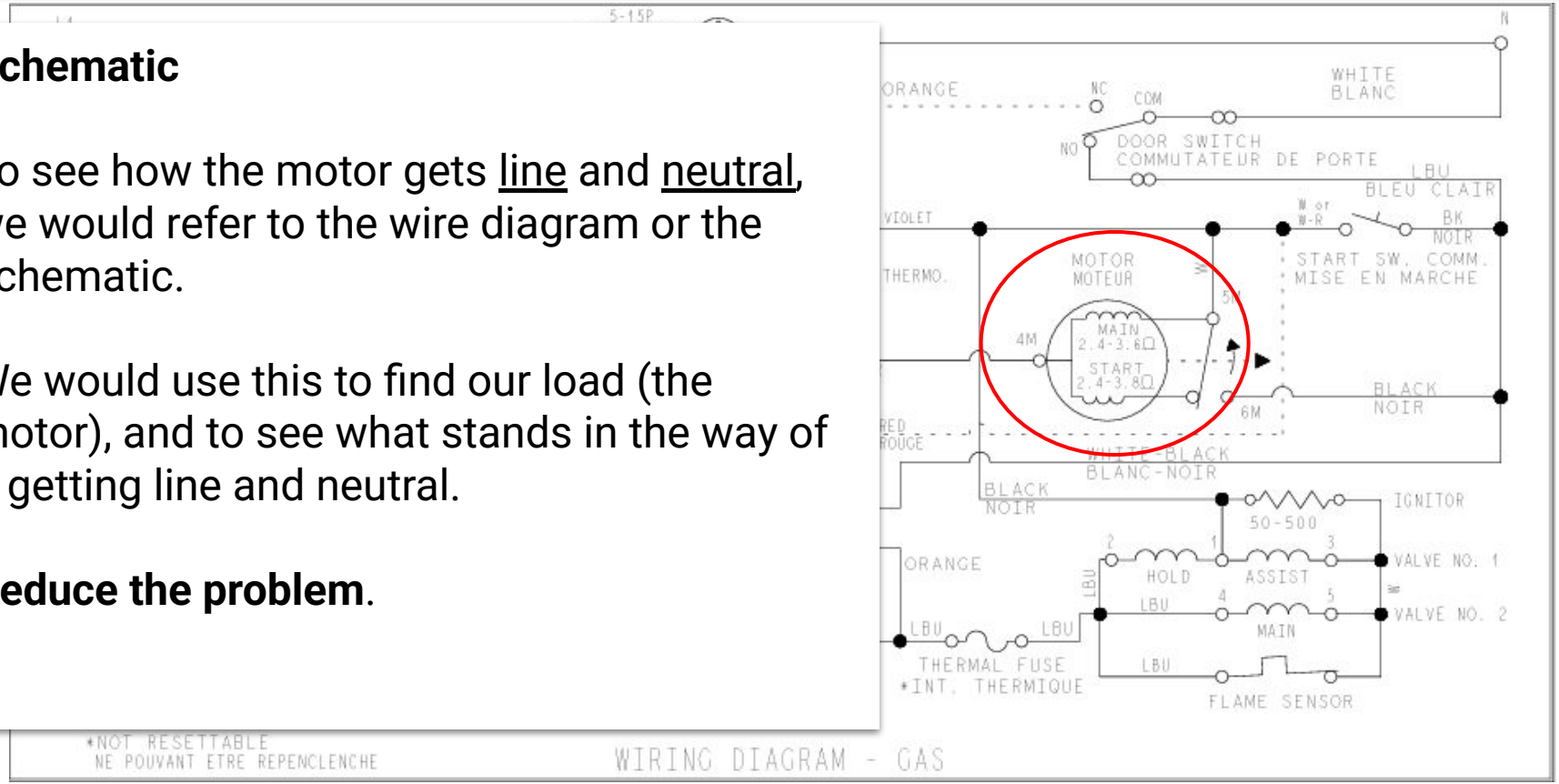
- The motor needs 120 VAC to operate.
- Switches are used to open or close either the line or the neutral circuit to the motor.
    - Without both present, the motor will not operate.

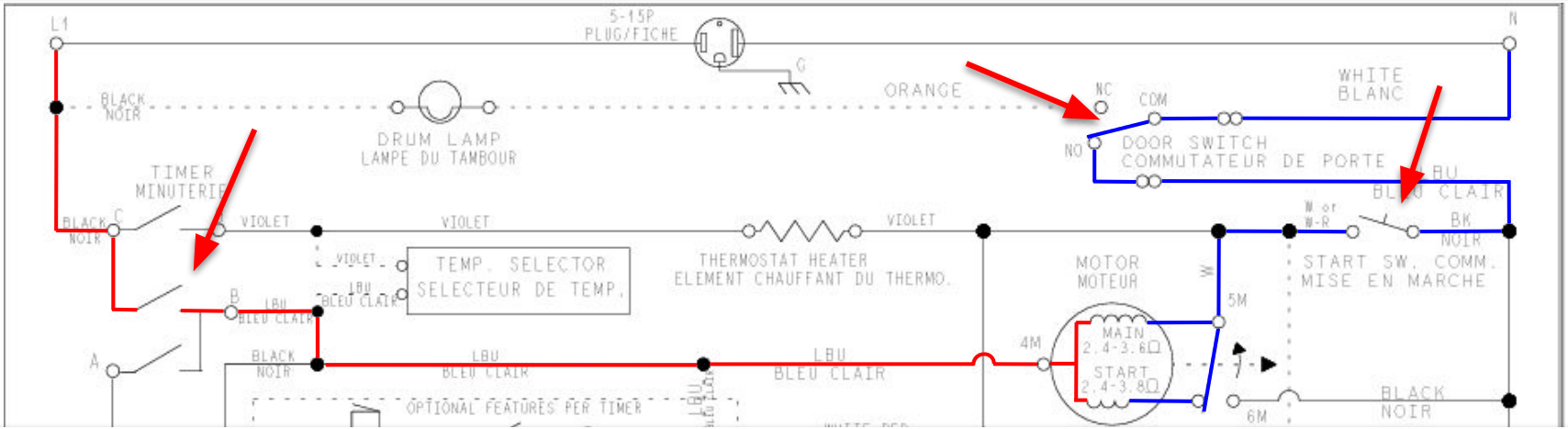
Schematic

To see how the motor gets line and neutral, we would refer to the wire diagram or the schematic.

We would use this to find our load (the motor), and to see what stands in the way of it getting line and neutral.

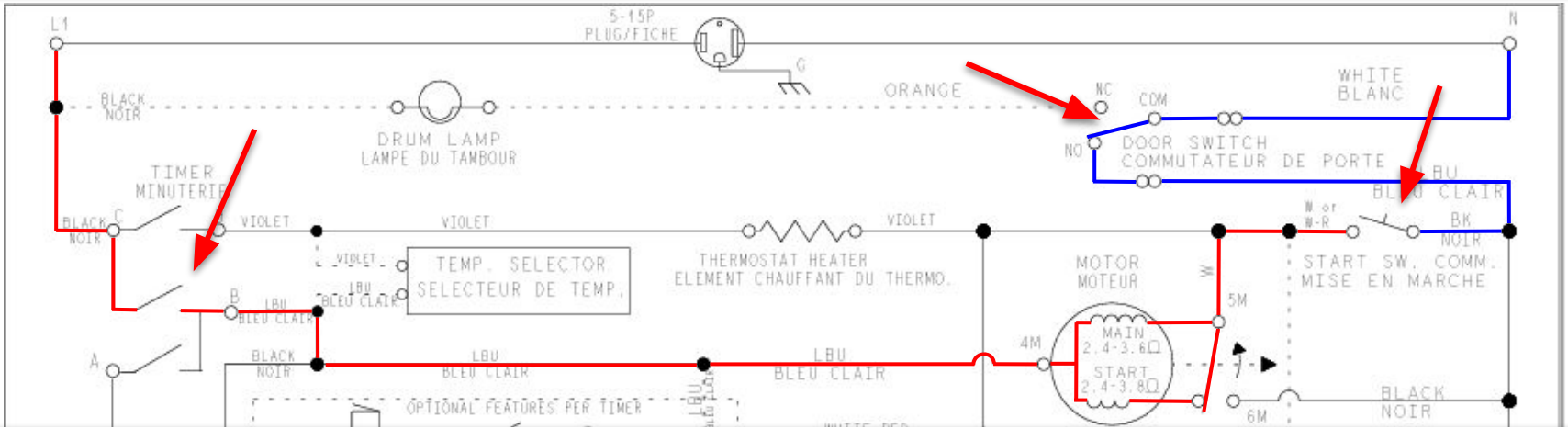
Reduce the problem.





Motor Circuit Switches

- C to B: Contacts in the timer.
- Door Switch
- PTS Switch



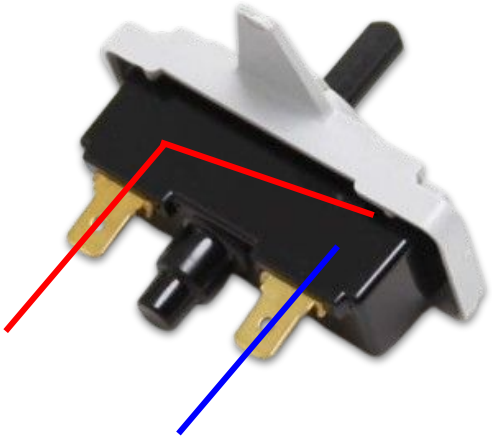
Motor Circuit Electricity - Standby Mode

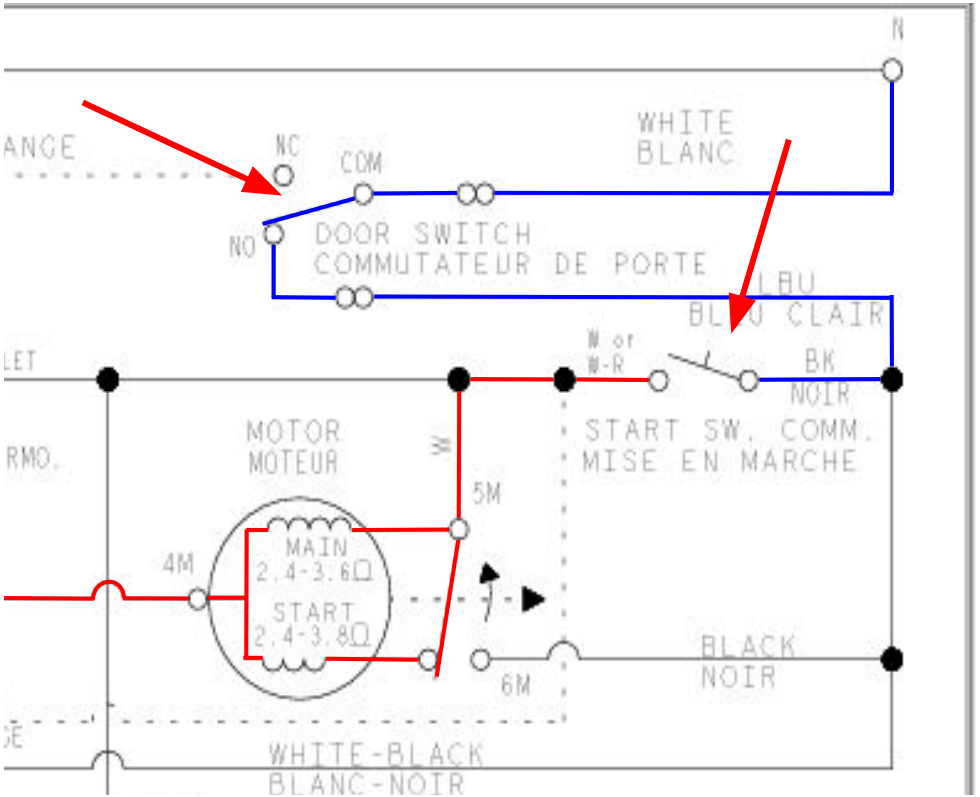
If the contacts in the timer are closed, then line voltage will be supplied to the motor circuit.

Without neutral supplied to the circuit, line voltage will backfeed up to the PTS Switch.

Basic Electricity - PTS Switch

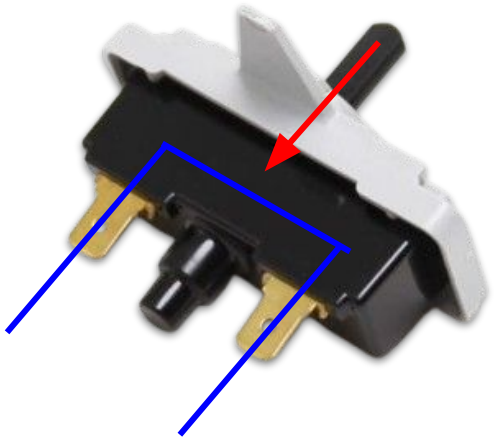
- Momentary switch. Spring loaded.
- When engaged, it closes the electrical circuit and supplies neutral to the motor circuit.

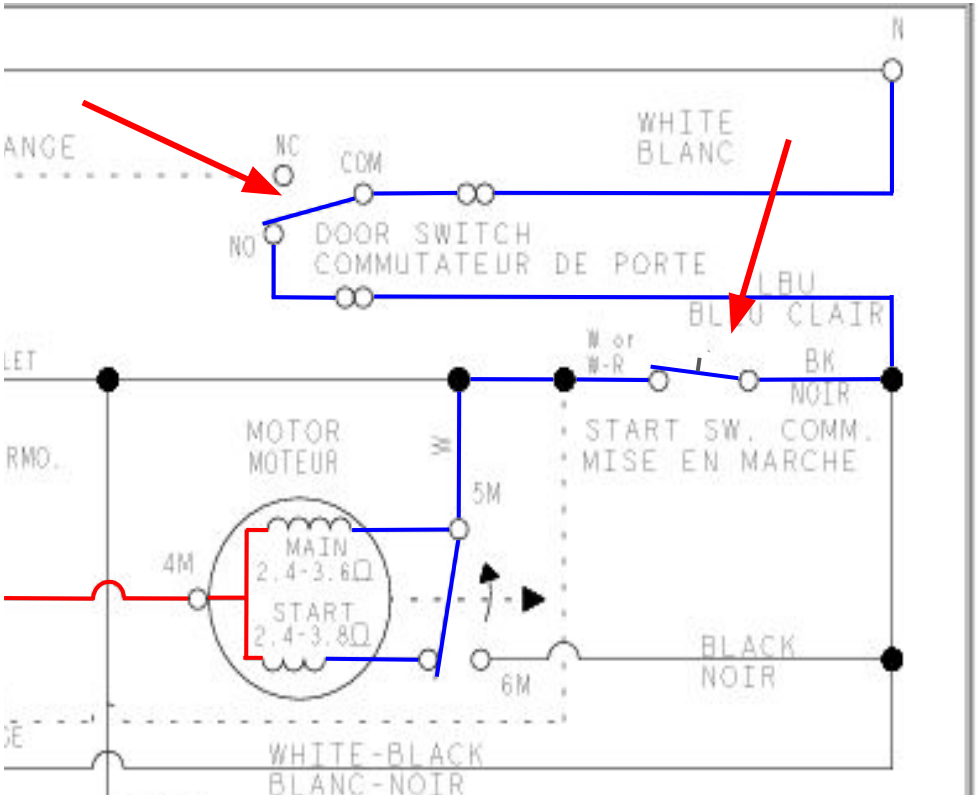




Basic Electricity - PTS Switch

- When pushed down, it closes the electrical contacts.
- In a working circuit, neutral pushes back to the motor.

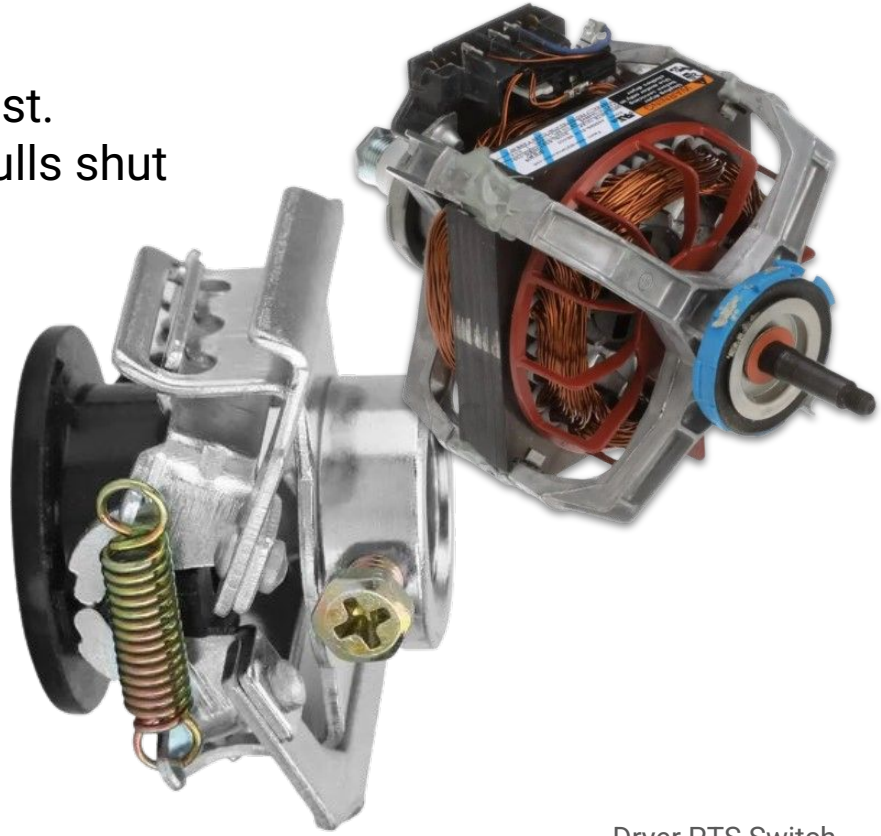




Motor Centrifugal Switch

- When the motor kicks to life, it spins fast.
- The centrifugal force of the spinning pulls shut the centrifugal switch.
- This switch serves multiple purposes.

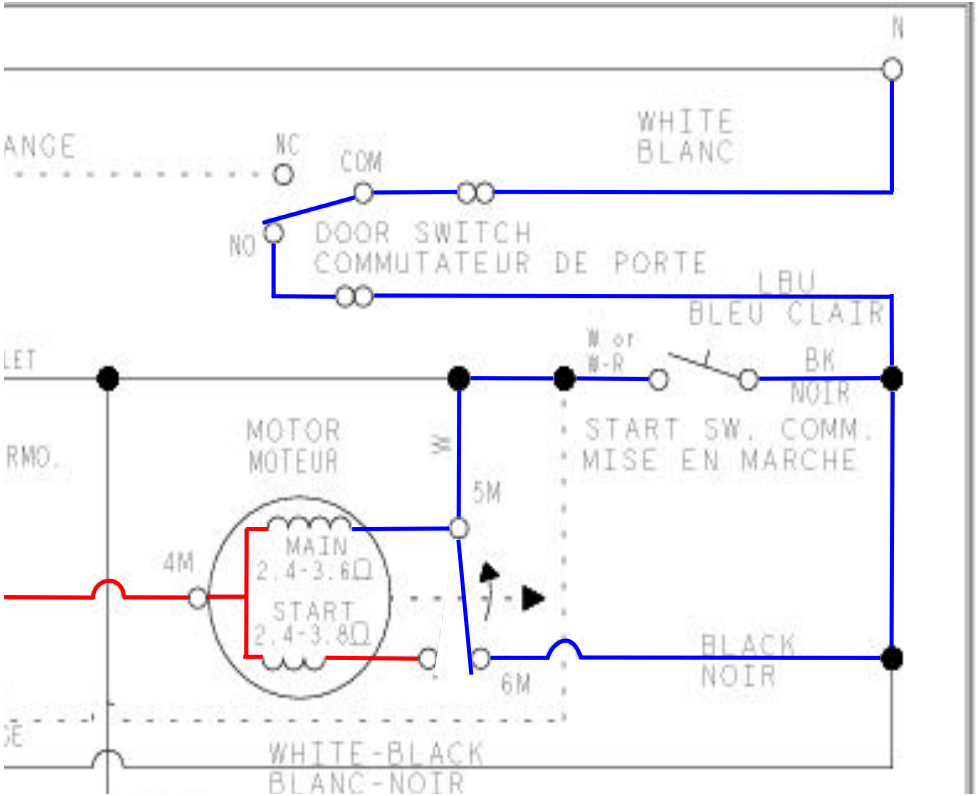
1. Closes the heater circuit.
2. Redirects Neutral.
3. Safety device.



Dryer PTS Switch

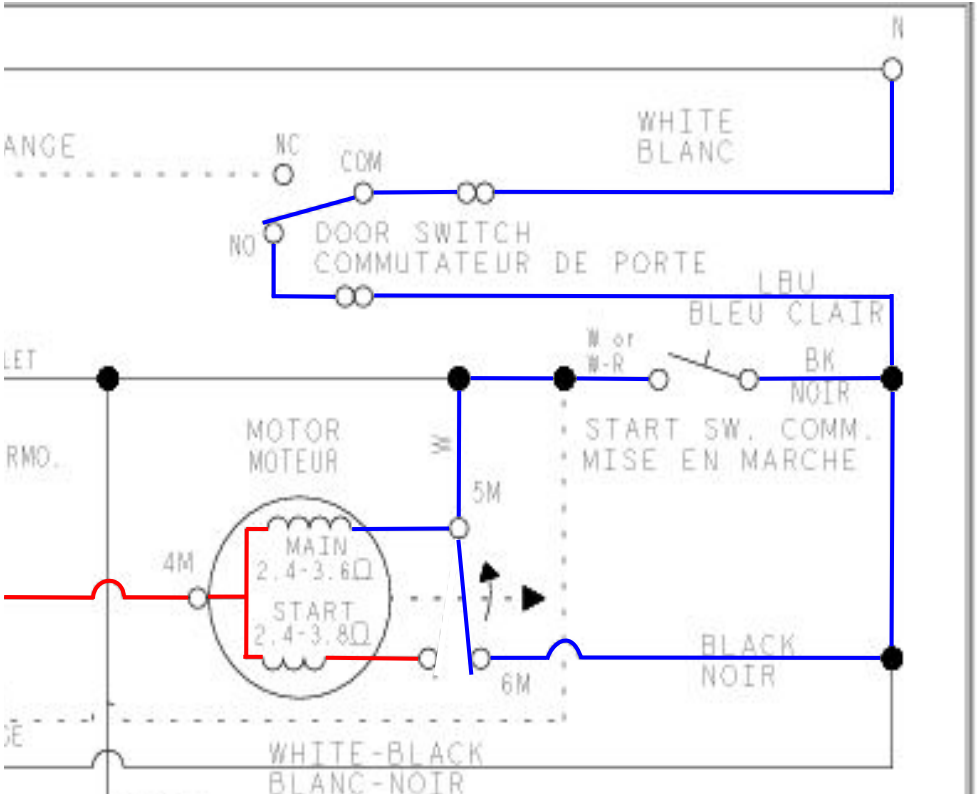
Motor Running

- When centrifugal switch engages, it takes the start winding out of the circuit.
- It redirects Neutral around the centrifugal switch.
- This is how the motor will keep running even though the momentary PTS switch is open.
- **Remember**: a load needs Line *and* Neutral to operate.



Gas vs. Electric

- The motor circuit is the same.
- The only difference on gas vs. electric is the heating circuit.

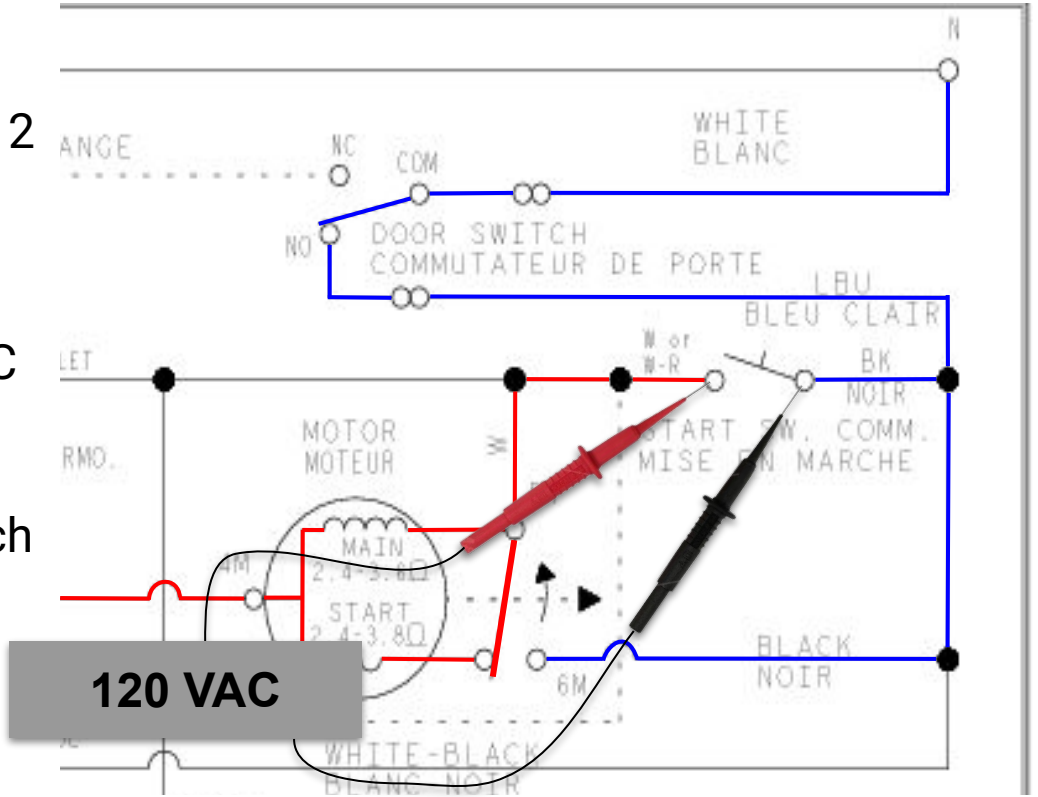


Voltage Potential

- Potential difference between 2 points.
  - 120 VAC = 120 (line) + 0 (neutral).
  - Neutral is a known 0 VAC source.

In a working unit, at the PTS switch not engaged, you should see 120 VAC.

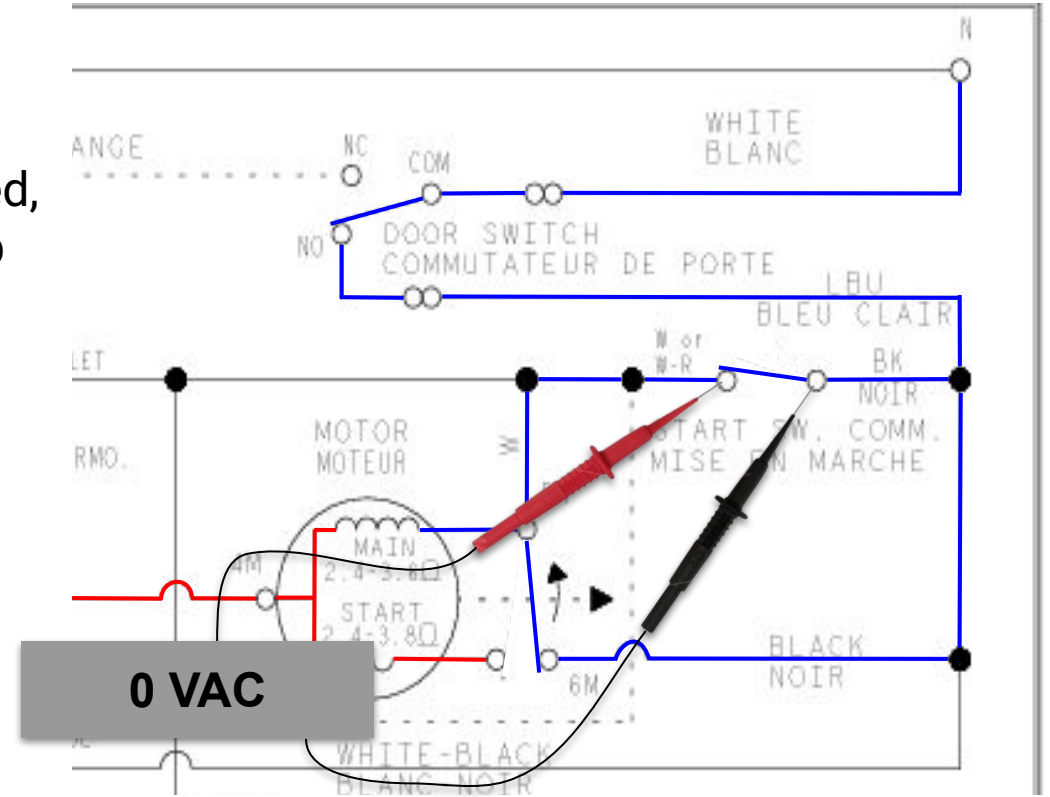
- Line voltage is passing through the motor.



Voltage Potential

When the PTS switch is pushed down, and the contacts are closed, you should see the 120 VAC drop to 0 VAC.

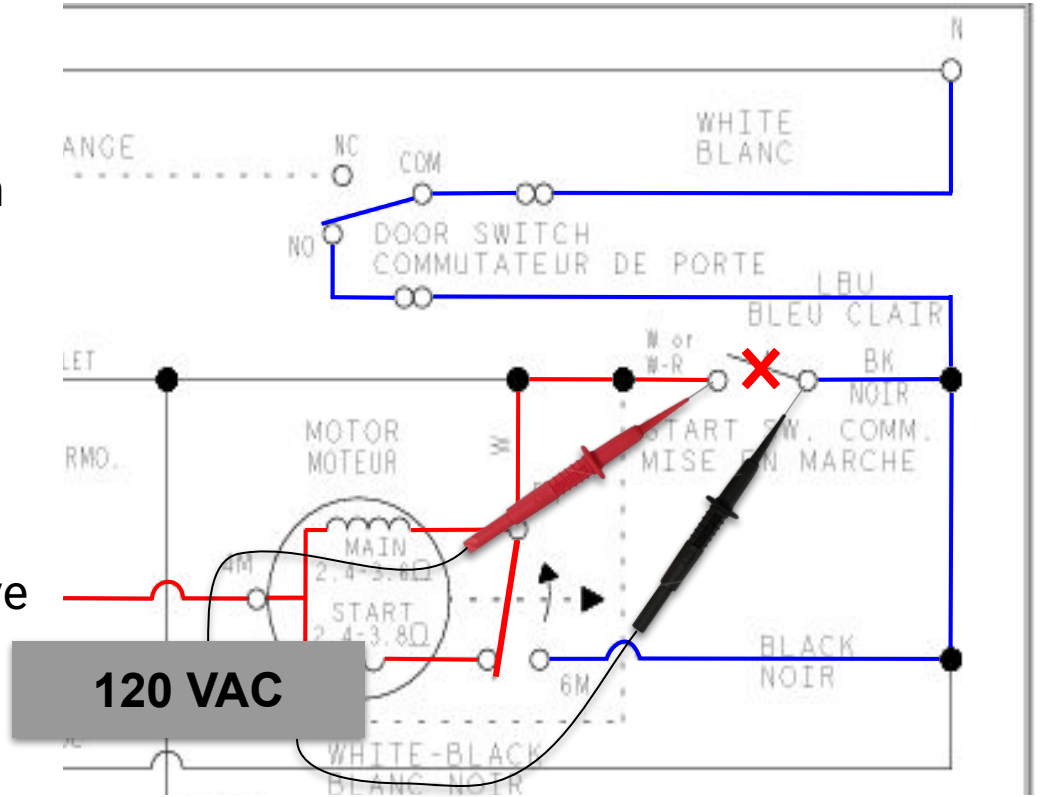
Neutral is pushing back to the other side of the motor winding, and the voltage is being dropped across the motor.



Voltage Potential
If you read 120 VAC across the PTS switch, and you push it down and you still see 120 VAC, then your PTS switch has failed.

It’s not closing Neutral to the circuit.

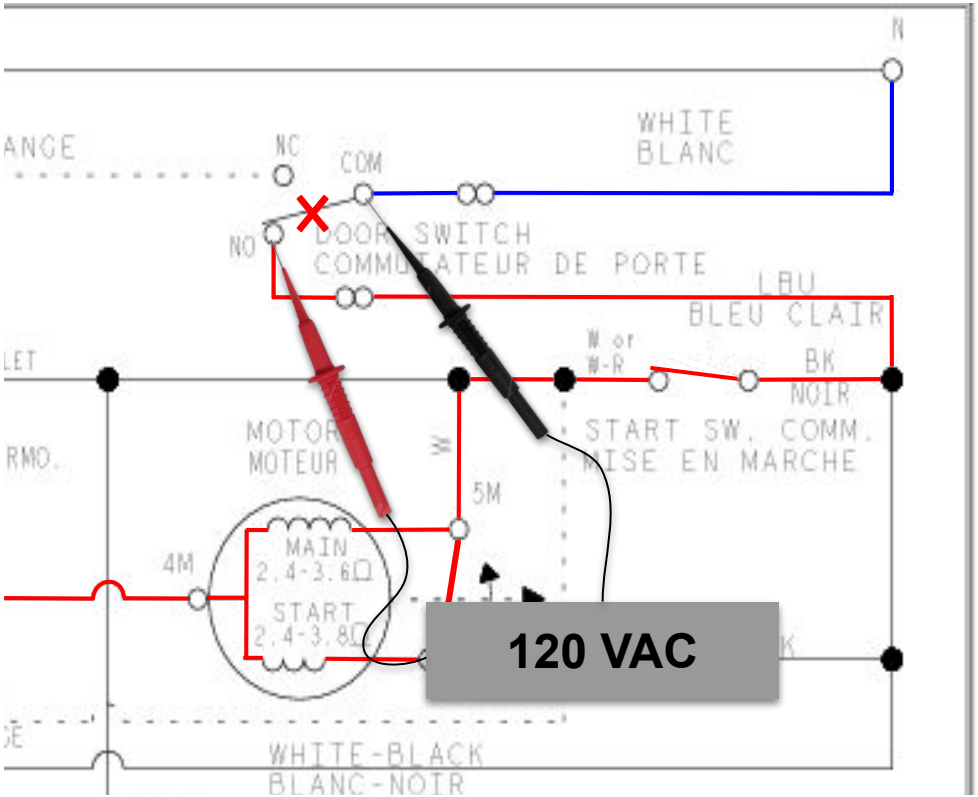
You can put a jumper wire to prove it out.

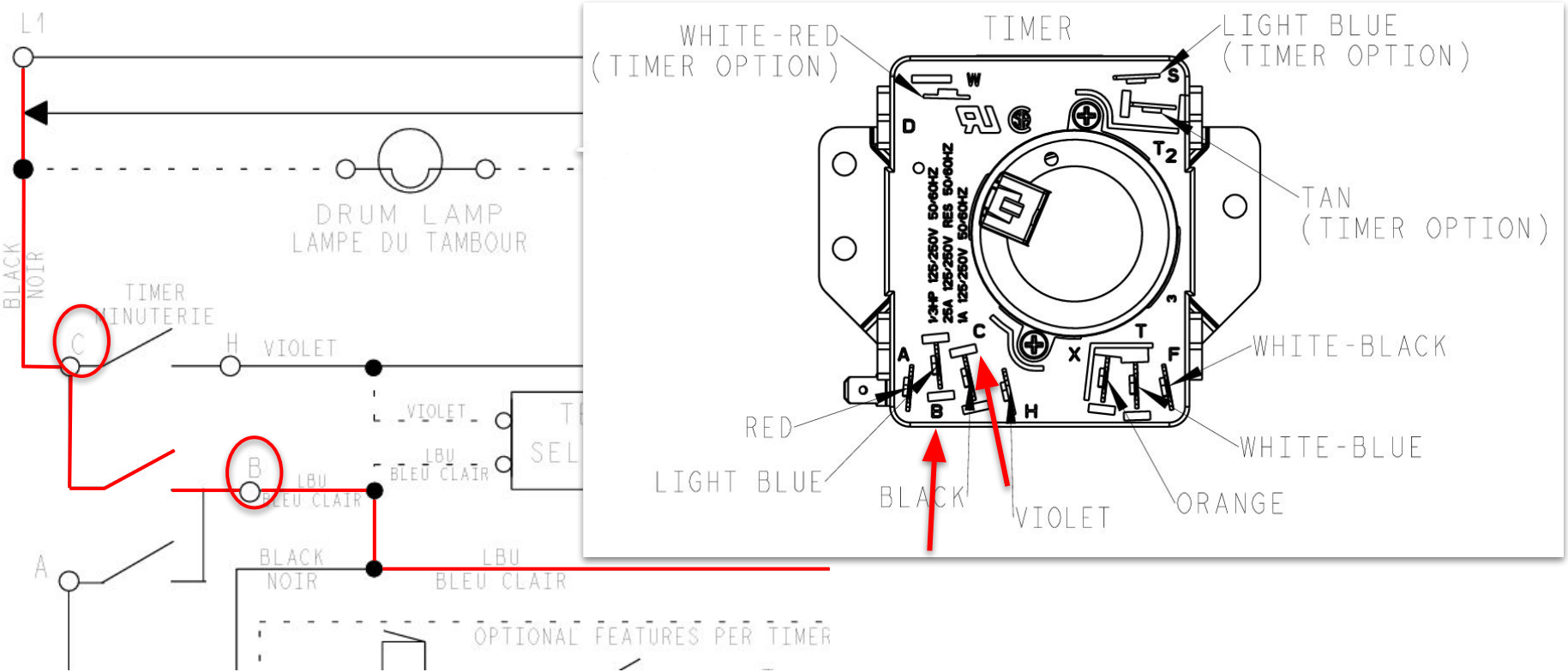


Voltage Potential
Same concept applies to ANY switch.

If the door switch has failed and the PTS switch is pressed, line voltage would pass through the PTS switch and would come to one side of the door switch.

You would see 120 VAC across the door switch wires.




L1
DRUM LAMP
LAMPE DU TAMBOUR
BLACK
NOIR
TIMER
MINUTERIE
C
H
VIOLET
VIOLET
LBU
BLEU CLAIR
B
LBU
BLEU CLAIR
A
BLACK
NOIR
LBU
BLEU CLAIR
OPTIONAL FEATURES PER TIMER
WHITE-RED
(TIMER OPTION)
TIMER
LIGHT BLUE
(TIMER OPTION)
W
S
D
T2
TAN
(TIMER OPTION)
1/3HP 125/250V 50-60HZ
25A 125/250V RES 50/60HZ
1A 125/250V 50/60HZ
C
T
3
A
X
F
WHITE-BLACK
B
H
RED
WHITE-BLUE
LIGHT BLUE
BLACK
VIOLET
ORANGE

Summary

- When you're dealing with a load that will not kick on, determine what it needs to work (120 VAC), and then zero in on what would prevent it from receiving either or.
- Use the schematics or wire diagrams to figure out what switches might prevent either line or neutral from getting to the load.
- You can use voltage potential to make live voltage checks to zero in on where the failure is.