

Wiring Diagrams — Therm-O-Disc Thermostats (Type 59T)

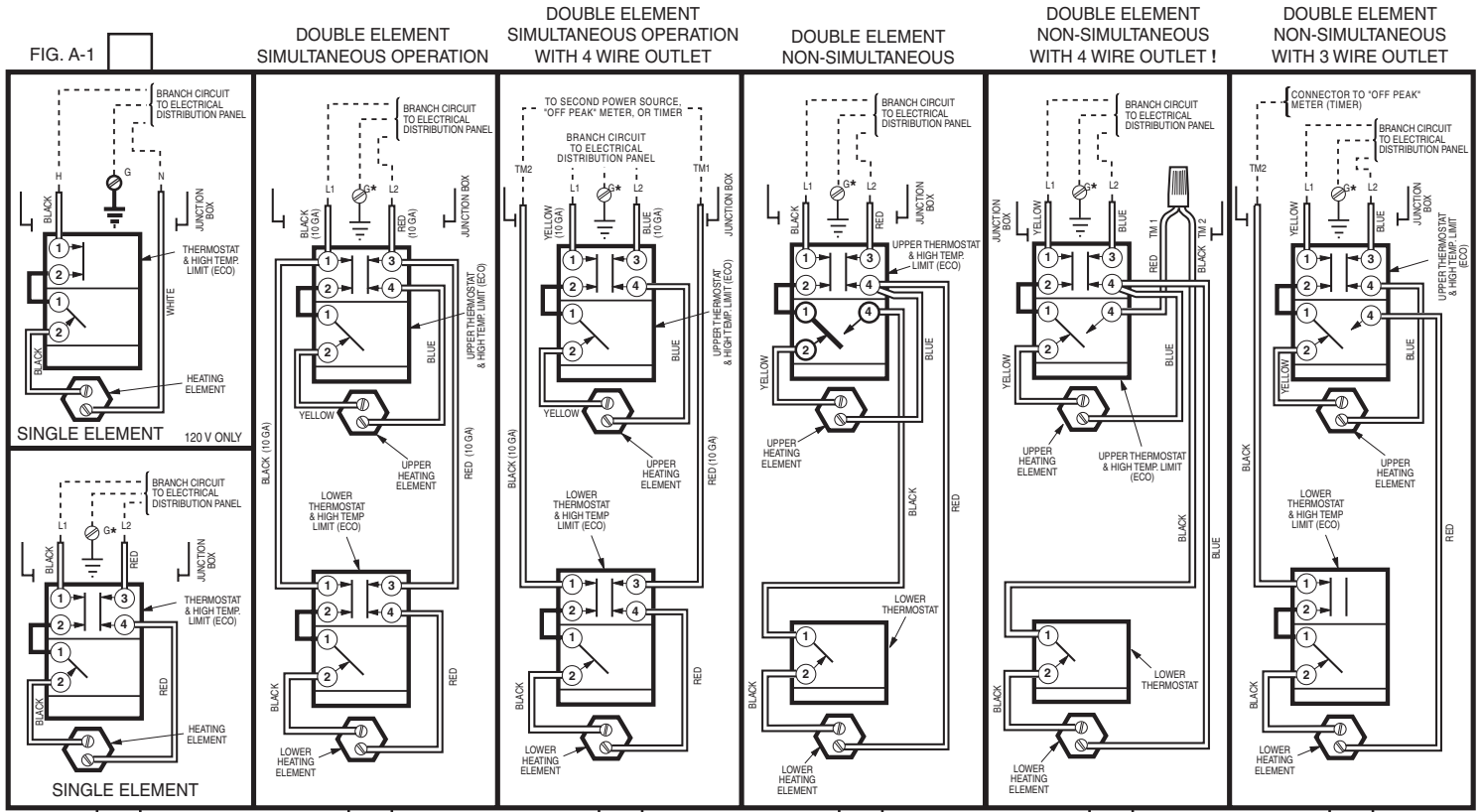


FIG. A-1

FIG. B

FIG. C

FIG. D

FIG. E

FIG. F

* Grounding conductor may be required. Refer to Wiring Section of Manual

! This water heater is factory equipped for two (2) wire connection to electrical power. For use with "off-peak" meter (timer) remove wire nut from red and black leads and connect to "off-peak" meter (timer).

THIS ELECTRIC WATER HEATER IS WIRED AS INDICATED ABOVE OR BELOW

Wiring Diagrams Electric Water Heaters for 3 - Phase Applications

Therm-O-Disc Thermostats
(Type 59T)

For the connection of this water heater to a 3-Phase Branch Circuit, connect field wiring to the water heater as indicated in the appropriate wiring diagram at right. A separate junction box is being supplied with this water heater (check bottom of carton) to accommodate wiring and conduit connections. Install the Junction Box as shown on the Installation/Instruction Sheet included in the plastic bag attached to the heater.

DOUBLE ELEMENT
SIMULTANEOUS OPERATION

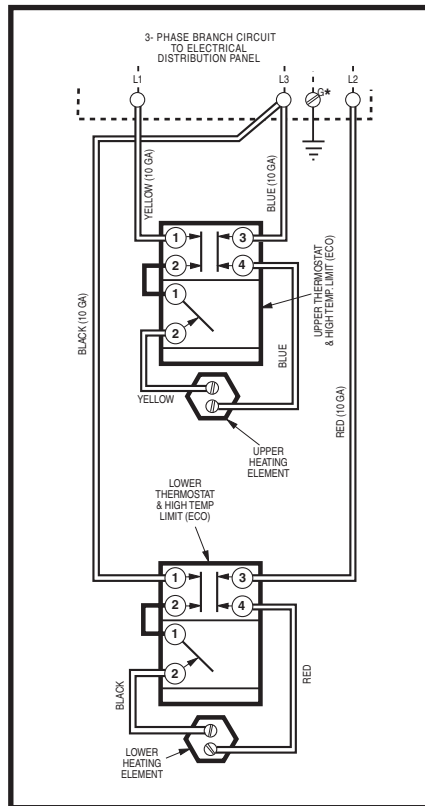


FIG. G

DOUBLE ELEMENT
NON-SIMULTANEOUS

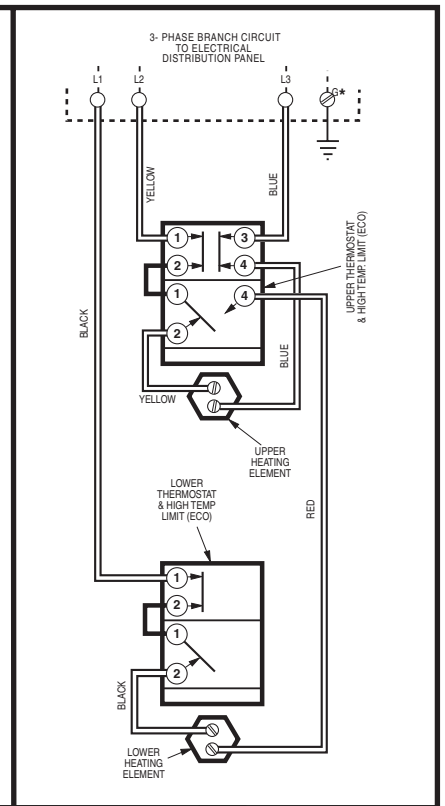


FIG. H



TECHNICAL SERVICE DEPARTMENT
Technical Service Bulletin
1-800-432-8373



Heating Element Properties - Voltage, Amps and Ohms; Recovery; Circuit Breaker
 Please check all local electrical codes before installing or changing wiring on electric water heaters.

Voltage, Amps and Ohms

| Wattage Rating of Heating Element | 120 Volts | | 208 Volts | | 240 Volts | | 277 Volts | | 480 Volts | |
|-----------------------------------|-----------|------|-----------|------|-----------|------|-----------|-------|-----------|-------|
| | Amps | Ohms | Amps | Ohms | Amps | Ohms | Amps | Ohms | Amps | Ohms |
| 600 | 5.0 | 24.0 | 2.9 | 72.1 | 2.5 | 96.0 | 2.2 | 127.8 | 1.3 | 384.0 |
| 750 | 6.3 | 19.2 | 3.6 | 57.7 | 3.1 | 76.8 | 2.7 | 102.3 | 1.6 | 307.2 |
| 1000 | 8.3 | 14.4 | 4.8 | 43.3 | 4.2 | 57.6 | 3.6 | 76.7 | 2.1 | 230.4 |
| 1250 | 10.5 | 11.5 | 6.0 | 34.6 | 5.2 | 46.1 | 4.5 | 61.4 | 2.6 | 184.3 |
| 1500 | 12.5 | 9.6 | 7.2 | 28.8 | 6.3 | 38.4 | 5.4 | 51.2 | 3.1 | 153.6 |
| 2000 | 16.7 | 7.2 | 9.6 | 21.6 | 8.3 | 28.8 | 7.2 | 38.4 | 4.2 | 115.2 |
| 2500 | 20.8 | 5.8 | 12.0 | 17.3 | 10.4 | 23.0 | 9.0 | 30.7 | 5.2 | 92.2 |
| 3000 | 25.0 | 4.8 | 14.4 | 14.4 | 12.5 | 19.2 | 10.8 | 25.6 | 6.3 | 76.8 |
| 3500 | -- | -- | 16.8 | 12.4 | 14.6 | 16.5 | 12.6 | 21.9 | 7.3 | 65.8 |
| 3800 | -- | -- | 18.3 | 11.4 | 15.8 | 15.2 | -- | -- | -- | -- |
| 4000 | -- | -- | 19.2 | 10.8 | 16.7 | 14.4 | 14.4 | 19.2 | 8.3 | 57.6 |
| 4500 | -- | -- | 21.6 | 9.6 | 18.8 | 12.8 | 16.2 | 17.1 | 9.4 | 51.2 |
| 5000 | -- | -- | 24.0 | 8.7 | 20.8 | 11.5 | 18.1 | 15.3 | 10.4 | 46.1 |
| 5500 | -- | -- | 26.4 | 7.9 | 22.9 | 10.5 | 19.9 | 14.0 | 11.5 | 41.9 |
| 6000 | -- | -- | 28.8 | 7.2 | 25.0 | 9.6 | 21.7 | 12.8 | 12.5 | 38.4 |

Recovery in Gallons per Hour

| Heating Element Wattage | Temperature Rise - Degrees Fahrenheit | | | | | | | | | | |
|-------------------------|---------------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|------------------|------------------|
| | 40 ⁰ | 50 ⁰ | 60 ⁰ | 70 ⁰ | 80 ⁰ | 90 ⁰ | 100 ⁰ | 110 ⁰ | 120 ⁰ | 130 ⁰ | 140 ⁰ |
| 2000 | 21 | 17 | 14 | 12 | 10 | 9 | 8 | 8 | 7 | 6 | 6 |
| 2500 | 26 | 21 | 17 | 15 | 13 | 12 | 10 | 10 | 9 | 8 | 7 |
| 3000 | 31 | 25 | 21 | 18 | 16 | 14 | 12 | 11 | 10 | 10 | 9 |
| 3500 | 36 | 29 | 24 | 21 | 18 | 16 | 15 | 13 | 12 | 11 | 10 |
| 3800 | 39 | 31 | 26 | 22 | 20 | 17 | 16 | 14 | 13 | 12 | 11 |
| 4000 | 41 | 33 | 28 | 24 | 21 | 18 | 17 | 15 | 14 | 13 | 12 |
| 4500 | 47 | 37 | 31 | 27 | 23 | 21 | 19 | 17 | 16 | 14 | 13 |
| 5000 | 52 | 41 | 34 | 30 | 26 | 23 | 21 | 19 | 17 | 16 | 15 |
| 5500 | 57 | 46 | 38 | 33 | 28 | 25 | 23 | 21 | 19 | 18 | 16 |
| 6000 | 62 | 49 | 41 | 35 | 31 | 27 | 25 | 22 | 21 | 19 | 18 |
| 9000 | 92 | 74 | 61 | 53 | 46 | 41 | 37 | 34 | 31 | 28 | 26 |
| 12,000 | 123 | 98 | 82 | 70 | 61 | 55 | 49 | 45 | 41 | 38 | 35 |



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Heating Element Properties - Voltage, Amps and Ohms; Recovery; Circuit Breaker
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Circuit Breaker and Wire Size

| Total Water Heater Wattage | Phase | Recommended Over Current Protection (Fuse or Circuit Breaker) Amperage Rating | | | | Copper Wire Size – AWG Based on N.E.C. Table 310-16 (75°C.) | | | |
|----------------------------|-------|---|------|------|------|---|------|------|------|
| | | 208V | 240V | 277V | 480V | 208V | 240V | 277V | 480V |
| 3000 | 1 | 20 | 20 | 15 | 15 | 12 | 12 | 14 | 14 |
| | 3 | 20 | 20 | --- | 15 | 12 | 12 | -- | 14 |
| 3800 | 1 | 25 | 20 | --- | --- | 10 | 10 | --- | --- |
| | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4000 | 1 | 25 | 25 | 20 | 15 | 10 | 10 | 12 | 14 |
| | 3 | 25 | 25 | --- | 15 | 10 | 10 | --- | 14 |
| 4500 | 1 | 30 | 25 | 25 | 15 | 10 | 10 | 10 | 14 |
| | 3 | 30 | 25 | --- | 15 | 10 | 10 | --- | 14 |
| 5000 | 1 | 30 | 30 | 25 | 15 | 10 | 10 | 10 | 14 |
| | 3 | 30 | 30 | --- | 15 | 10 | 10 | --- | 14 |
| 5500 | 1 | 35 | 30 | 25 | 15 | 8 | 10 | 10 | 14 |
| | 3 | 35 | 30 | --- | 15 | 8 | 10 | --- | 14 |
| 6000 | 1 | 40 | 35 | 30 | 20 | 8 | 8 | 10 | 12 |
| | 3 | 3 | 530 | --- | 15 | 8 | 10 | --- | 14 |
| 8000 | 1 | 50 | 45 | 40 | 25 | 8 | 8 | 8 | 10 |
| | 3 | 45 | 40 | --- | 20 | 8 | 8 | --- | 12 |
| 9000 | 1 | --- | 50 | 45 | 25 | --- | 8 | 8 | 10 |
| | 3 | 50 | 45 | --- | 25 | 8 | 8 | --- | 10 |
| 10,000 | 1 | --- | --- | 50 | 30 | --- | --- | 8 | 10 |
| | 3 | --- | 50 | --- | 25 | --- | 8 | --- | 10 |
| 11,000 | 1 | --- | --- | 50 | 30 | --- | --- | 8 | 10 |
| | 3 | --- | 50 | --- | 25 | --- | 8 | --- | 10 |
| 12,000 | 1 | --- | --- | --- | 35 | --- | --- | --- | 8 |
| | 3 | --- | --- | --- | 30 | --- | --- | --- | 10 |



Heating Element Properties - Voltage, Amps and Ohms; Recovery; Circuit Breaker
 Please check all local electrical codes before installing or changing wiring on electric water heaters.

Special 120-Volt Applications

| Heating Element Wattage | Recovery in Gallons per Hour | Recommended Over Current Protection (Fuse or Circuit Breaker) Amperage Rating | Copper Wire Size – AWG Based on N.E.C. Table 310-16 (75°C.) |
|-------------------------|------------------------------|---|---|
| | | 120V | 120V |
| 1500* | 7.75 | 20 | 12 |
| 1700 | 8.8 | 20 | 12 |
| 2000 | 10.3 | 25 | 10 |
| 2500 | 12.9 | 30 | 10 |
| 3000 | 15.5 | 35 | 8 |

* Less; than 1500 watts may be wired 14 gauge with 15 amp protection. Check local electrical codes.

The 4500 Watt Standard

| Wattage Rating of Heating Element | 120 Volts | | 208 Volts | | 240 Volts | | 277 Volts | | 480 Volts | |
|-----------------------------------|-----------|------|-----------|------|-----------|------|-----------|------|-----------|------|
| | Amps | Ohms | Amps | Ohms | Amps | Ohms | Amps | Ohms | Amps | Ohms |
| 4500 | -- | -- | 21.6 | 9.6 | 18.8 | 12.8 | 16.2 | 17.1 | 9.4 | 51.2 |

Temperature Rise - Degrees Fahrenheit

| | 40° | 50° | 60° | 70° | 80° | 90° | 100° | 110° | 120° | 130° | 140° |
|------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| 4500 | 47 | 37 | 31 | 27 | 23 | 21 | 19 | 17 | 16 | 14 | 13 |

| Total Water Heater Wattage | Phase | Recommended Over Current Protection (Fuse or Circuit Breaker) Amperage Rating | | | | Copper Wire Size – AWG Based on N.E.C. Table 310-16 (75°C.) | | | |
|----------------------------|-------|---|------|------|------|---|------|------|------|
| | | 208V | 240V | 277V | 480V | 208V | 240V | 277V | 480V |
| 4500 | 1 | 30 | 25 | 25 | 15 | 10 | 10 | 10 | 14 |
| | 3 | 30 | 25 | --- | 15 | 10 | 10 | --- | 14 |