



ELECTRIC PRODUCTS
2325 E. Michigan Rd., Shelbyville, Indiana 46176-3400
Phone: Toll-Free 1-800-428-4370, (317) 398-9713, Fax: (317) 398-2655
On the Internet: <http://www.arco-electric.com>

INSPECTION

Upon receiving the Roto-Phase, inspect for damage or missing parts and report such losses to the carriers and to the factory; always quoting the Roto-Phase model and serial number.

INSTALLATION

The Roto-Phase is suitable for mounting in any position either horizontal or vertical. Care must be taken when mounting to wall rafters, or wood floors to make sure that normal Roto-Phase vibration is not transmitted with sounding board amplification.

AVOIDING MAINTENANCE

The Roto-Phase is an essentially reliable machine and requires little maintenance; in fact they tend to suffer from over attention more than lack of attention. Avoid whenever possible.

1. Moisture and Chemicals
2. Airborne materials that may cause blocked ventilation, which leads to excessive heat. Cooling air temperatures must not exceed 40 degrees (104 degrees F).

LUBRICATION

ALL MODELS HAVE DOUBLE SHIELDED BEARINGS AND DO NOT NEED LUBRICATION.

GENERAL HOOK-UP

- A. **FOLLOW ALL LOCAL, STATE, AND NATIONAL ELECTRIC CODES**
- B. Connect L1 & L2 from a two pole breaker at the single-phase service through a separate protective device to the Roto-Phase Terminal Block T1 & T2. (For wire sizes see Roto-Phase INPUT CHART)
- C. Connect Roto-Phase lead T3 (mfg. phase) through the separate protective device to the three-phase distribution and/or three-phase motors.
- D. Connect L1 & L2 from a separate two pole breaker (not the same breaker as the one used to feed the converter) at the single-phase service to the three-phase distribution panel and/or three-phase motor load.
- E. If your Roto-Phase contains an auxiliary capacitor panel with connection circuits E and B refer to connection diagram for AUXILIARY BANK for the proper installation.

PRECAUTIONS

- A. **DO NOT CONNECT ANY SINGLE-PHASE LOADS OR MAGNETIC CONTROLS TO T3 (mfg. phase).** The line can readily identify T3 with the highest phase-to-ground voltage.
- B. Properly ground all electrical equipment.
- C. Always start the Roto-Phase before energizing the three-phase load.
- D. Because properly maintained voltages on during motor start-up is very important, wire sizing must be carefully followed and wire distances should also be carefully studied.

SPECIAL INSTRUCTIONS

THIS UNIT CONTAINS NON-PCB CAPACITORS

Non-PCB capacitors are standards established by Federal Regulation

The no-load amperage readings are typical of normal operations. They may vary approximately 10% with variation of line voltage.

Reasonably close readings insure correct Roto-Phase electrical performance.

T1 = Line current

T2 = Line current

T3 = Capacitor current

At the time of original installation, record the Roto-Phase no-load amperage (no three-phase motors running) as well as the capacitor amperage. To read capacitor amperage, it will be necessary to read the capacitor circuits in the capacitor panel, which will require removing the panel cover. Save this record and periodically, at least once a year, and have a qualified electrician take new readings. The new readings can be compared with the original readings in order to see if the converter is experiencing any problems. If the capacitor amperage is lower than the original readings, then it could mean that a capacitor has probably failed and should be replaced.

Phase converters cannot be made to work equally well on all motors even though the horsepower, voltage, and amperage ratings are the same. Motors of different makes (import brands) and designed for different purposes vary considerably in their electrical characteristics; therefore, it is not always possible to make a universally applicable converter for motors with a given horsepower, voltage, and amperage.



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INPUT CHART - WIRE SIZE BASED ON 50 FOOT DISTANCE USING COOPER WIRE

| ROTO-PHASE MODEL | 230 VOLT ROTO-PHASE WIRE SIZE T1 - T2 - T3 | 480 VOLT ROTO-PHASE WIRE SIZE T1 - T2 - T3 | 230 VOLT ROTO-PHASE FUSE SIZE | 480 VOLT ROTO-PHASE FUSE SIZE | 230 VOLT ROTO-PHASE OVERLOAD PROTECTION | 480 VOLT ROTO-PHASE OVERLOAD PROTECTION | 230 VOLT ROTO-PHASE MAGNETIC STARTER | 480 VOLT ROTO-PHASE MAGNETIC STARTER | AVERAGE 230 VOLT NO-LOAD AMPERAGE | AVERAGE 480 VOLT NO-LOAD AMPERAGE | AVERAGE 230 VOLT CAPACITOR AVERAGE | AVERAGE 480 VOLT CAPACITOR AVERAGE |
|------------------|--|--|-------------------------------|-------------------------------|---|---|--------------------------------------|--------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|
| MF | 12 | 12 | 10 | 5 | 6 | 3 | 0 | 0 | 2.5 | 1.25 | 3.9 | 1.95 |
| MG | 12 | 12 | 10 | 5 | 7.5 | 3.75 | 0 | 0 | 2.5 | 1.25 | 8.5 | 4.25 |
| M | 12 | 12 | 15 | 7.5 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| A | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| R | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| B | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| C | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| G | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| P | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| PKT | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| PKO | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| K2G* | 3" | 6" | 100" | 50" | 80" | 40" | 3" | 2" | 16" | 8" | 80" | 40" |
| Y2P* | 2" | 6" | 125" | 60" | 100" | 50" | 4" | 3" | 18" | 9" | 110" | 55" |
| L2S* | 1/0" | 4" | 150" | 75" | 120" | 60" | 4" | 3" | 23" | 11.5" | 128" | 64" |
| W3P* | 2" | 6" | 125" | 60" | 100" | 50" | 4" | 3" | 18" | 9" | 110" | 55" |
| HD2 | 12 | 12 | 15 | 8 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| HD3 | 10 | 12 | 20 | 10 | 15 | 7.5 | 0 | 0 | 5 | 2.5 | 16 | 8 |
| HD5 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| HD7 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| HD10 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| HD15 | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| HD20 | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| HD25 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| HD30 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| HD40 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| HD2P* | 2" | 6" | 125" | 60" | 100" | 50" | 4" | 3" | 18" | 9" | 110" | 55" |
| HD2S* | 1/0" | 4" | 150" | 75" | 120" | 60" | 4" | 3" | 23" | 11.5" | 128" | 64" |
| HD3P* | 2" | 6" | 125" | 60" | 100" | 50" | 4" | 3" | 18" | 9" | 110" | 55" |
| HD4P* | 2" | 6" | 125" | 60" | 100" | 50" | 4" | 3" | 18" | 9" | 110" | 55" |
| ST3 | 12 | 12 | 10 | 5 | 7.5 | 3.75 | 0 | 0 | 2.5 | 1.25 | 3.9 | 1.95 |
| ST5 | 10 | 12 | 20 | 10 | 11 | 5.5 | 0 | 0 | 5 | 2.5 | 16 | 8 |
| ST7 | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| ST10 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| ST15 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| ST20 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 60 | 30.5 |
| PV0 | 12 | 12 | 15 | 8 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| PV1 | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| PV2 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| PV3 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| PV4 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| PV5 | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| PV6 | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| PV7 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| PV8 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| PV9 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| PV10 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| CNC1 | 12 | 12 | 15 | 7.5 | 11 | 5.5 | 0 | 0 | 5 | 2.5 | 7 | 3.5 |
| CNC2 | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 6 | 3 | 11 | 5.5 |
| CNC3 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 8 | 4 | 24 | 12 |
| CNC5 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 10 | 5 | 26 | 13 |
| CNC7 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 12 | 6 | 28 | 14 |
| CNC10 | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 60 | 30 |
| CNC15 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 22 | 11 | 86 | 43 |
| CNC20* | 3" | 6" | 100" | 50" | 75" | 37.5" | 3" | 2" | 16" | 8" | 60" | 30" |
| CNC25* | 2" | 6" | 125" | 60" | 100" | 50" | 4" | 3" | 20" | 10" | 78" | 39" |
| CNC30* | 1/0" | 4" | 150" | 75" | 120" | 60" | 4" | 3" | 22" | 11" | 86" | 43" |
| HDH1 | 12 | 12 | 15 | 8 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| HDH2 | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| HDH3 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| HDH5 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| HDH7 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |

* indicates units in electrical parallel. Data represents requirements for each unit.



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| ROTO-PHASE MODEL | 230 VOLT ROTO-PHASE WIRE SIZE T1 - T2 - T3 | 460 VOLT ROTO-PHASE WIRE SIZE T1 - T2 - T3 | 230 VOLT ROTO-PHASE FUSE SIZE | 460 VOLT ROTO-PHASE FUSE SIZE | 230 VOLT ROTO-PHASE OVERLOAD PROTECTION | 460 VOLT ROTO-PHASE OVERLOAD PROTECTION | 230 VOLT ROTO-PHASE MAGNETIC STARTER | 460 VOLT ROTO-PHASE MAGNETIC STARTER | AVERAGE 230 VOLT NO-LOAD AMPERAGE | AVERAGE 460 VOLT NO-LOAD AMPERAGE | AVERAGE 230 VOLT CAPACITOR AVERAGE | AVERAGE 460 VOLT CAPACITOR AVERAGE |
|-------------------|--|--|-------------------------------|-------------------------------|---|---|--------------------------------------|--------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|------------------------------------|
| HDH10 | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| HDH15 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| CMG | 12 | 12 | 10 | 5 | 7.5 | 3.75 | 0 | 0 | 2.5 | 1.25 | 1.2 | 0.6 |
| CM | 12 | 12 | 15 | 7.5 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| CA | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| CR | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| CB | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| CC | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| CG | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| CP | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| CS | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| DBM | 12 | 12 | 15 | 7.5 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| DBH | 10 | 12 | 20 | 10 | 15 | 7.5 | 0 | 0 | 5 | 2.5 | 16 | 8 |
| DBA | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| DBR | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| DBB | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| DBC | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| DBG | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| DBP | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| DBS | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| SP2 | 12 | 12 | 15 | 7.5 | 11 | 5.5 | 0 | 0 | 3 | 1.5 | 13 | 6.5 |
| SP3 | 8 | 12 | 30 | 15 | 22 | 11 | 1 | 0 | 4 | 2 | 22 | 11 |
| SP5 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| SP7 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| SP10 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| SP15 | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| SP20 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| SP25 ^f | 3 ^f | 6 ^f | 100 ^f | 50 ^f | 75 ^f | 37.5 ^f | 3 ^f | 2 ^f | 16 ^f | 8 ^f | 80 ^f | 40 ^f |
| SP30 ^f | 2 ^f | 6 ^f | 125 ^f | 60 ^f | 100 ^f | 50 ^f | 4 ^f | 3 ^f | 18 ^f | 9 ^f | 110 ^f | 55 ^f |
| SP40 ^f | 1/0 ^f | 4 ^f | 150 ^f | 75 ^f | 120 ^f | 60 ^f | 4 ^f | 3 ^f | 23 ^f | 11.5 ^f | 128 ^f | 64 ^f |
| SP50 ^f | 2 ^f | 6 ^f | 125 ^f | 60 ^f | 100 ^f | 50 ^f | 4 ^f | 3 ^f | 18 ^f | 9 ^f | 110 ^f | 55 ^f |
| SP60 ^f | 1/0 ^f | 4 ^f | 150 ^f | 75 ^f | 120 ^f | 60 ^f | 4 ^f | 3 ^f | 23 ^f | 11.5 ^f | 128 ^f | 64 ^f |
| HD7CL | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| HD10CL | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| HD15CL | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| HD20CL | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| HD25CL | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| HD30CL | 2/0 | 3 | 150 | 75 | 150 | 75 | 5 | 3 | 30 | 15 | 150 | 75 |
| HD40CL | 4/0 | 2 | 200 | 100 | 200 | 100 | 5 | 4 | 40 | 20 | 200 | 100 |
| HD50CL | 350 | 1/0 | 250 | 125 | 250 | 125 | 5 | 4 | 50 | 25 | 250 | 125 |
| HD60CL | 500 | 2/0 | 300 | 150 | 300 | 150 | 6 | 5 | 60 | 30 | 300 | 150 |
| HD75CL | 750 | 4/0 | 400 | 200 | 400 | 200 | 6 | 5 | 80 | 40 | 400 | 200 |
| HD100CL | 1250 | 350 | 500 | 250 | 500 | 250 | 6 | 5 | 100 | 50 | 500 | 250 |
| CHDELV5 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| CHDELV7 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| CHDELV10 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| CHDELV15 | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| CHDELV20 | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |
| CHDELV25 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| CHDELV30 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| CHDELV40 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 23 | 11.5 | 128 | 64 |
| TM5 | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 1 | 10 | 5 | 26 | 13 |
| TM7 | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 10 | 5 | 26 | 13 |
| TM10 | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 12 | 6 | 28 | 14 |
| TM15 | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 60 | 30 |
| TM20 | 1/0 | 4 | 150 | 75 | 120 | 60 | 4 | 3 | 22 | 11 | 86 | 43 |
| RHT(N) | 8 | 10 | 40 | 20 | 30 | 15 | 2 | 0 | 7 | 3.5 | 33 | 16.5 |
| BHT(N) | 6 | 10 | 50 | 25 | 40 | 20 | 2 | 1 | 7 | 3.5 | 40 | 20 |
| CHT(N) | 4 | 8 | 80 | 40 | 60 | 30 | 3 | 2 | 11 | 5.5 | 61 | 30.5 |
| GHT | 3 | 6 | 100 | 50 | 75 | 37.5 | 3 | 2 | 16 | 8 | 80 | 40 |
| PHT | 2 | 6 | 125 | 60 | 100 | 50 | 4 | 3 | 18 | 9 | 110 | 55 |

^f Indicates units in electrical parallel. Data represents requirements for each unit.



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“HELPFUL HINTS”

NOTE: All ROTO-PHASE models should be up to full speed within 3 seconds

If nothing starts:

- A. Check single-phase voltage supply source with voltmeter.
- B. Check protection-reset breaker or replace fuse.
- C. Check for loose connections.

If ROTO-PHASE will not start; or comes up to speed slowly:

- A. Check single-phase power supply lines (L1 & L2) for misconnection. (L1 & L2 must be connected to ROTO-PHASE terminal block on the line side of T1 & T2).
- B. Capacitors may be disconnected from the T2 & T3 circuit or defective.
- C. Check for the correct supply voltage; Example: 460 VAC rated converter connected to a 230 VAC single-phase power supply.
- D. Check for locked bearings.

If fuses blow or circuit breaker trips on ROTO-PHASE start-up:

- A. Check to be sure fuses are “time-lag” (dual element) and the correct size.
- B. Check to be sure the circuit breakers are designed to handle high starting currents (35,000 or 65,000 AIC rated).

If ROTO-PHASE is “noisy”:

- A. Check for loose panel or panel lid.
- B. Be sure the unit is mounted on a level floor or surface.
- C. Sometimes grease in the bearings can make intermittent noise which sounds like a bearing; but really isn’t and it usually smoothes out after a short running period of 10 to 15 minutes.

If three-phase motor does not come up to full speed:

- A. Excessive single-phase voltage drop from the utility service lines on start-up of the motor may be present – check single-phase voltage drop at the main service during start-up of the three-phase motor. The voltage on the single-phase power should not drop below 220 VAC during start-up of the ROTO-PHASE or the three-phase motor. A voltage loss could be affected by undersized wiring to the ROTO-PHASE or the three-phase motor, single-phase service size is inadequate, or the utility service transformer is too small (approximately 1 KVA per operated HP is required).
- B. Check the three-phase motor lead connections – motor could be dual voltage rated 230/460 VAC and misconnected at the wrong voltage for operation.
- C. Starting torque required is too great:
 - 1. Mechanical problems with the three-phase motor.
 - 2. In case of compressors, the air-unloading device on the compressor cylinders may be inoperative, starting against head pressure.

-RECORD NO-LOAD ROTO-PHASE ELECTRICAL READINGS AT DATE OF INSTALLATION-

| | | |
|-----------------------------|-------|------------|
| DATE OF INSTALLATION | _____ | |
| MODEL NUMBER | _____ | |
| SERIAL NUMBER | _____ | |
| PHASE 1 TO GROUND | _____ | VAC |
| PHASE 2 TO GROUND | _____ | VAC |
| PHASE 3 TO GROUND | _____ | VAC |
| PHASE 1 TO PHASE 2 | _____ | VAC |
| PHASE 1 TO PHASE 3 | _____ | VAC |
| PHASE 2 TO PHASE 3 | _____ | VAC |
| PHASE 1 AMPERAGE | _____ | |
| PHASE 2 AMPERAGE | _____ | |
| CAPACITOR AMPERAGE | _____ | |