Classic

Installation and Operations Manual

SPECTRA® CLASSIC

installation & operations manual

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Lencore spectra

Leave enough cable at each ceiling opening so that you have an extra 3-5 ft. This cable will be made into a loop once the unit has been hung and put in the ceiling using a 7" wire tie. The cabling connecting the units should not be too tight. Once installed, cable cannot touch the ceiling (use the wire ties to accomplish this).

On each main (master) unit, turn each center volume control on the main (masters) seven clicks & the blue gain control 3/4 clockwise. This is especially helpful when using a CVC unit. In that case, if the volume is slightly up or down, all of the units can be adjusted by the CVC. This saves a great deal of time. This may vary depending on the quantity of units and the height of the plenum area. Masking units come from the factory pre-set for mineral fiber ceiling tile. If glass fiber ceiling tile is used, the contour switch must be turned 3/4 to the left towards the pink spectrum

All Wire must be UL Listed, Plenum Rated, 18 gauge, stranded, non-shielded

NOTE

If private offices are included, units should be set lower in these offices. Suggest 3 clicks on center switch and 1/2 turn on gain control.

section 1

1.1 | preparation

PRESETTING CVC CENTRAL VOLUME CONTROL OR RCVC

Turn each main (master) center volume control to the 7th position.

Turn the blue gain control 3/4 clockwise. Put the CVC blue central volume control in the middle position. This is a good starting point. Then only minor volume adjustments should be made. This setup will vary from location to location and will also vary depending on plenum heights.

HANG SOUND MASKING UNITS

Use Erico Multi-Function Clips, 4-Z-3-4 to hang units. Hang them approximately 10" above the ceiling tile at the designated location. Each Spectra® unit is suspended from the nearest T-Bar hanger by chain. It is important you hang the units at a uniform height throughout, otherwise, you risk the chance of less uniformity of sound when the units are turned on.

FIND OUT IF PLENUM RATED TIE WRAPS MUST BE USED ON YOUR PARTICULAR PROJECT

The units are normally placed 6-9ft. from the hard walls and usually 12-15 ft. apart. Once you get in the ceilings, there are almost always changes that need to be made. You may run into heater ducts and other obstacles that make it impossible to install the units in the exact spot that the plans suggest. If you need to hang the unit in a different area, that's okay. Hang the units as close to the suggested area as possible. A team member should follow behind the cable person(s) and begin hanging units.

New construction may require that units be attached directly to the deck above. Verify what method must be used for hanging units prior to undertaking the installation.

CONNECT UNITS

This is the most critical part of the entire operation. The most thorough members of your team should do this task. All of the efficiency of your installation can be lost if you have connection problems. Units are wired in parallel.

Supply each of the team members connecting the units with a wiring diagram.

section 1

1.2 | wiring

WIRE COLOR	PURPOSE	CONNECTION
RED|BROWN	POWER	MAIN (MASTER) to MAIN (MASTER) MAIN (MASTER) to TRANSFORMER
WHITE|BLACK	AUDIO SPEAKER OUT	MAIN (MASTER) to SECONDARY *White wire is used for Secondary only. No other purpose.*
BLUE|BLACK	CVC/RCVC OR TIMER LEVEL CONTROL	ONLY RUN ONE PAIR PER ZONE FROM MIDDLE OF RUN WHEN USING CVC OR TIMER AND MASTER TO MASTER
GREEN|BLACK	25v|AUDIO in	ONLY RUN ONE PAIR FROM MIDDLE OF RUN TO AMPLIFIER WHEN USING PA|MUSIC AND MASTER TO MASTER

FINAL CHECK OF AREA AND PRE-SETTING DECIBEL LEVEL

Again, use the most skilled people for wiring.

It is very important on a large job to check an area (approximately 30 units) before leaving it. Power the area using one of the transformers. Power with an electric cord, with a plug on one end, and screw connectors on the other end. Connect power cord to black wires of transformer. Hook wire from home run to the two screws on the transformer and plug in. Use the sound meter to Test sound level. Find an area near a Secondary where all of the ceiling tiles are closed to get a reading.

The ideal reading is between 47.5 and 48 dB. If this is not the level of the sound, adjust using the middle volume control or if you have a CVC and all of the Mains were preset, you can do the final adjustment for the whole area from the CVC. Allow to run for approximately 15 minutes. If the transformer overheats or you can hear a loud humming sound, you have Incorrectly wired unit(s).

NOTE

It may be necessary for you to make 2 or more additional trips to fine tune the project once the space is furnished.

a great sound makes no noise

section 1

1.3 | hooking up the transformer

HOOKING UP THE TRANSFORMER

Power is to be connected by an electrical contractor. Installer to provide a UL 1411 recognized transformer with an output of 16/18 volts. Use 16-18 volt step down transformers. These are designed to be connected to junction boxes. There is a knock out plug on the side of the junction box: for the smaller 40va transformer. Several transformers can be connected to a junction box if you are bringing all of the home runs to a central area. A separate circuit is recommended.

TRANSFORMER CAPACITY CHART*

All transformers 16|18 v	40va	95va
Masking Only no page	33 units	78 units
Masking with moderate paging levels	21 units	48 units
Masking with maximum paging levels	12 units	33 units

* All capacity information assumes a ratio of one main to two secondary speakers.

Junction Box measures
4 inches square, 2 1/8 inches deep

POWER REQUIREMENTS FOR SOUND MASKING TRANSFORMERS

Please have your electrician install one or more 120 volt/20 amp circuits in a 4-inch square box (see sample).

Typically, one standard junction box can handle up to (4) 40va transformers or (1) 95va transformer. Be sure to specify and have your electrician install enough junction boxes to accommodate the number of units for your specific project.

section 1

1.4 | sound meter

instructions for using the simpson model 884-2 (or equivalent sound meter)

1. Turn large round dial to 50.
2. Make sure fast/slow setting is on slow.
3. Hold meter approximately 4' above floor.
4. Note meter reading after one minute.

It takes approximately 30 seconds for meter to respond to sound. 0 to 50 dB...you want the reading to be to the left of the 0. -10 would be 40 dB. You need a reading between -2.5 and 1.5 on the meter. This would be 47.5 to 48.5dB. It would naturally be high with the ceiling open.

Approximately 2 weeks after install, or when ceiling tiles and furniture are all in place, reset units to 47.5 to 48.5 dB four feet above floor.

section 2

2.1 | troubleshooting

common questions

LOUD NOISE COMING FROM MAIN (MASTER) AND SECONDARY

This means that there is a miswire. Go to Main and recheck wiring, as it probably is a ground wire problem. Walk the area and listen for a loud humming sound. In many cases, this will indicate which unit is miswired.

TRANSFORMER OVERHEATING ?

As in the above scenario, you have incorrectly wired unit(s) and need to search out the source. Again, walk the area and listen for a loud humming sound. The Main unit humming is the one wired incorrectly . Power half of the Mains, if the transformer doesn't overheat, the problem is in the other half. Check each of the remaining Mains wires or split the area in half again. There is always a slight possibility that a Main (master) has the short and it's not the wiring.

NO SOUND IN AN AREA?

Check the wires as they may not be connected correctly or may not have good contact. If that is not the case, you have a bad Main. Before you replace the Main, test a second time with test cord and transformer separately.

IMPOSSIBLE TO HANG UNIT WHERE DRAWING SHOWS?

If an obstacle is in the way, move the unit to the nearest area on the drawing where an obstacle does not exist.

HOW FAR ABOVE CEILING SHOULD UNITS BE HUNG?

The units should be reachable from a standard 6-8' ladder. A minimum of 10" above the ceiling tile is recommended. Most importantly, the units must be hung at a uniform height throughout the space for correct tuning.

WHAT IF THE AREA TO HANG UNITS HAS A LIGHT OR GRATING?

Move to the next acoustical tile and hang the unit there. Always hang units over acoustical tiles.

WHAT HAPPENS WHEN YOU HANG A UNIT CLOSE TO AN AIR RETURN OPEN GRILL OR ANY AREA WHICH ALLOWS THE MASKING SOUND TO PASS FREELY THROUGH WITHOUT THE CEILING TILE FILTERING THE SOUND?

Sound blends into the existing masking sound in the environment. By doing this you have taken out the harsh sound that has passed through the ceiling unfiltered.

section 2

2.1 | troubleshooting

cvc questions

LOSS OF POWER IN UNITS WHEN HOME RUN IS CONNECTED TO CVC?

Make sure that you have connected the brown & red wires in addition to the blue & black wires . Make sure you have NOT connected the white wire between the CVC and a Main. (White wire is only used when connecting a Main/CVC to a Secondary). Recheck wiring of CVC. If everything checks out- you may have a bad CVC.

HOW DO YOU CONNECT A CVC?

Connect the CVC to a Main near the middle of a run the way you would connect any other Main. Refer to the appropriate wiring diagram for the correct CVC wiring.

CAN YOU HOOK-UP SECONDARYS TO A CVC?

Yes, a CVC is treated like a regular Main in area it is placed. When doing this we recommend hooking up only one Secondary to a CVC. Refer to the appropriate wiring diagram for the correct eve wiring.

timer questions

IF A PROGRAMMABLE TIMER HAS BEEN INCLUDED IN YOUR PROJECT , PLEASE CONSULT THE TIMER MANUAL. (CVC'S ARE NOT REQUIRED WHEN USING A PROGRAMMABLE TIMER).

section 2

2.1 | troubleshooting

questions about the PA system

WHAT WIRE PATTERN IS REQUIRED TO HOOK UP THE PA SYSTEM?

Use the green and black wire.

IF YOU DON'T WANT THE PA IN A CERTAIN AREA?

Do not hook up the green wire of the Main (master) to the run of Main (master) cable for the area that you do not want to be connected to the PA. The only consideration is that the Secondary speakers wired from the non-connected Main (master) are not going to have PA capability as well. The green wire must be connected from one run of the Main cable to the next or the PA connectivity will stop there. Also , there is an adjustment for paging volume on every Main. This will give you further flexibility to turn the page/ music up or down or off.

WHAT TO DO IF THE SOUND IS DISTORTED?

There are two main causes and both of them are simple to fix. The most common solution is that the volume of your amplifier is too loud. The volume control is very sensitive. Slight turns can make a great deal of difference. If the distortion is only in a single area, more than likely you have a unit hanging at an angle. Rehang so that it is straight.

WHAT TO DO IF SOUND DOES NOT COME ON?

Did you turn up the volume to the amplifier? Is the amplifier plugged in? Ist amplifier turned on?

WHAT IF THE SOUND MASKING VOLUME GOES DOWN WHEN THE PA IS USED?

Check that there are the correct number of units per transformer.

WHAT IF THE PA DOES NOT WORK IN AN ENTIRE SECTION OF UNITS?

The home run of that area has not been run to the amplifier.

Each Main (master) unit (LM6) and eve unit (LM6-CVC) has a paging/ music input. This is the GREEN wire (25V) and BLACK wire (COM). Both units also have a paging volume control. This control is factory set in MID position. Connect the GREEN wires of all Mains and eves of a particular paging zone together to create a home run. Do the same for the BLACK wires . Connect this home run to the 25-volt output terminal of the paging power amplifie . GREEN to 25V, BLACK to COM.

MICROPHONE PAGING INPUT CONNECTIONS

APFR-20 AMPLIFIER EXAMPLE	
MC|TEL	selector switch in MIC position
Microphone Hi	connect to MIC|TEL INPUT terminal HOT
Microphone Lo	connect to MIC|TEL INPUT terminal COM
Microphone Shield	connect to MIC|TEL INPUT terminal G

See APFR-20 instructional manual for muting options.

In order to utilize a telephone paging system, a telephone interface module is required. This can be a BSS03, BSS06, BSS09, or other telephone decoding system.

TELEPHONE PAGING INPUT CONNECTIONS

MC|TEL	selector switch in TEL position
RING	from trunk card connect to MIC|TEL INPUT terminal HOT
TIP	from trunk card connect to MIC|TEL INPUT terminal COM
Optional:	FRAME ground shield connect to MIC|TEL INPUT terminal G

CHOOSE APPROPRIATE MODULE TYPE FOR MUTING OPTIONS NEEDED

L-01S	no muting
L-01S	module can be muted
L-41S	voice activated muting of other module

In installations where paging is not utilized and the GREEN wire is not connected, the paging volume control should be set to minimum position (i.e., counter clockwise) in order to avoid stray electrical noise pickup.

APFR-20 AMPLIFIER EXAMPLE...
MUSIC, TAPE, CD INPUT CONNECTIONS

1Ok-ohm, balanced.
Use two conductor shielded cable.

Hi from player connect to H terminal HOT. Lo from player connect to C terminal COM. GND shield connect to terminal G.

RCA phone plug, 10K-ohm unbalanced. Use two single conductor shielded cables.

Connect left channel to top AUX phone plug and right channel to bottom AUX phone plug.

See APFR-20 instruction manual for muting options.

With the various paging amplifiers and input/output modules, one can design zone paging, all call paging with mutable background music. For maximum versatility, zone and all call paging should be provided through the telephone interface module and should be done by the customer ‘s telephone system installer. Lencore does not provide this service.

materials required

common questions

1. Cable shall be 18 gauge,Stranded ,UL Listed, Plenum Rated, non shielded.
2. Transformer shall be UL 1411 Listed with an output of 16/18volts.
3. Fuse shall be UL Listed 3.0 amps installed at each 40va transformer, 125 volts (Max) rating. Fuse holder shall be UL Listed with same rating. Not required for installations using 95v a transformers due to built-in circuit breaker.
4. Wire nuts & caddy clips.

OPTIONAL EQUIPMENT

Ramset or Hilti Gun (for deck installation)
Telescopic Pole (15' extension)

NOTE

Estimate approximately 20'of wire per unit,allowing additional footage for home runs to transformers and/or other equipment such as CVC's,Timers, Amplifiers, etc.

Wire can be purchased in full rolls of 1,000 feet. Standard layouts will require that two-thirds of wire purchased be 2-conductor and the balance of wire purchased can be two, four, or six conductor depending on applications used.

CONTROLS TO ADJUST THE MAIN (MASTER) UNIT.

PHOTO SHOWS BOTTOM OF UNIT.

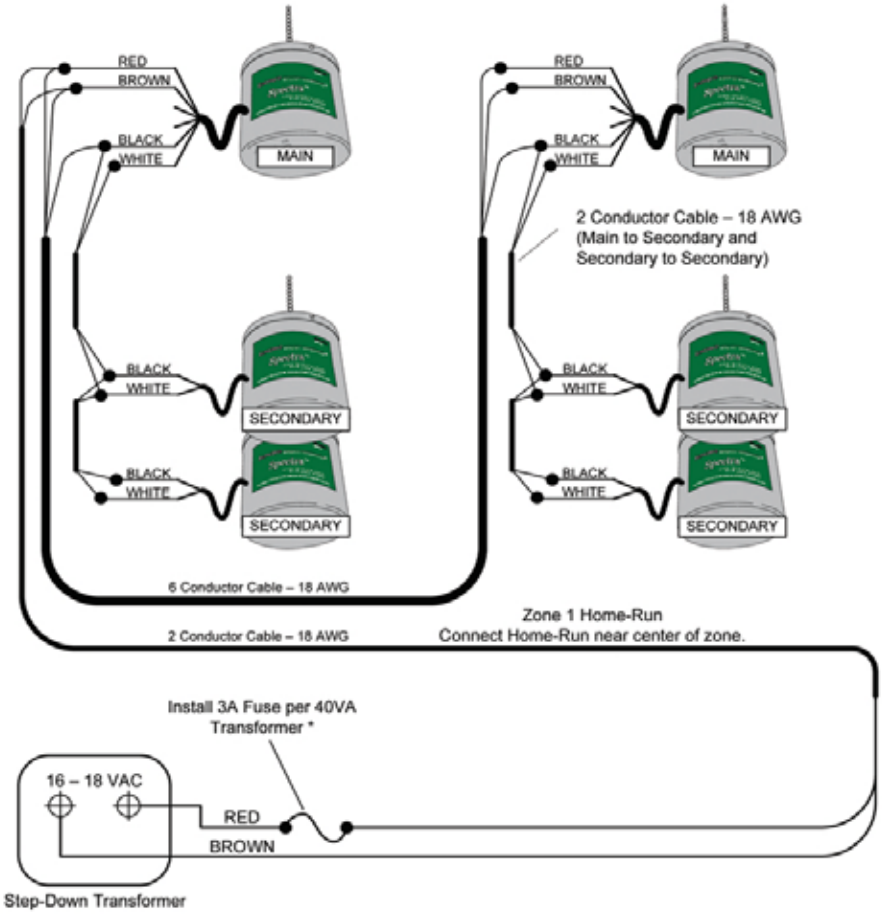
section 3

3.1 | schematics

POWER ZONES ARE ZONES FOR POWER VIA TRANSFORMER(S)

schematics

FIG. A **WIRING DIAGRAM – 1 ZONE, NO CVC OR TIMER, NO PAGE/MUSIC**



★ - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. B WIRING DIAGRAM – 1 PWR. ZONE, 1 CVC, NO PAGE/MUSIC (RCVC Option in caption)

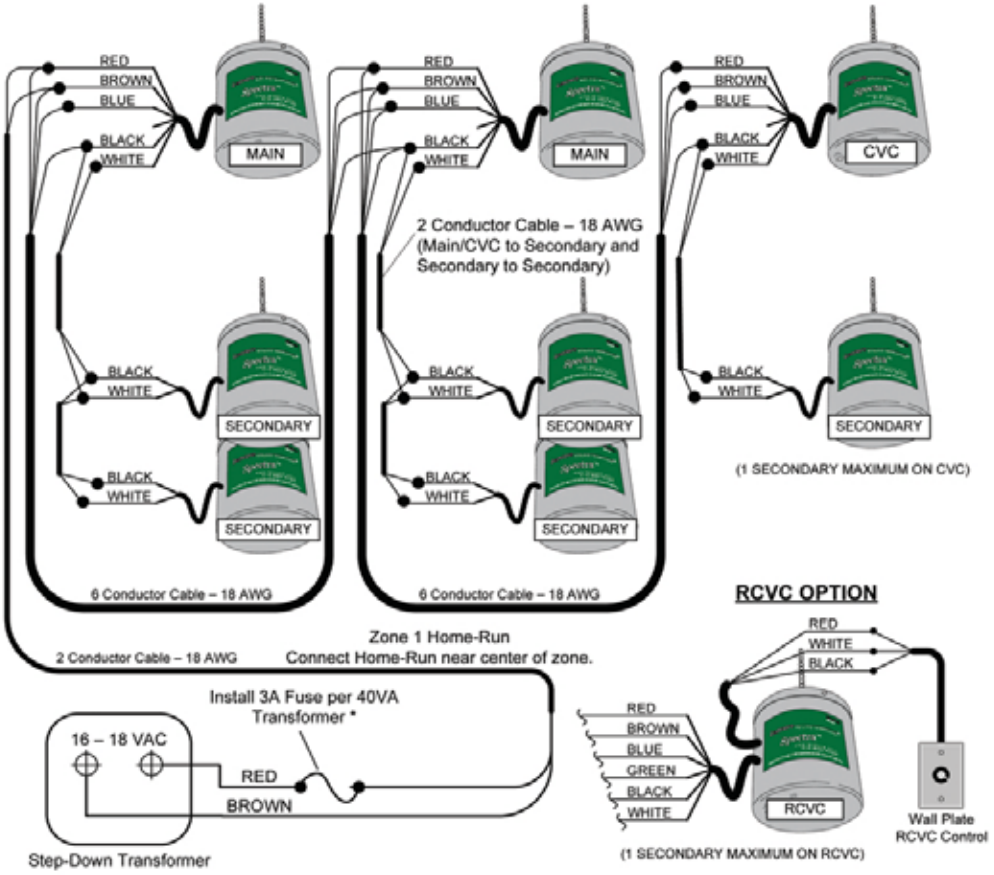
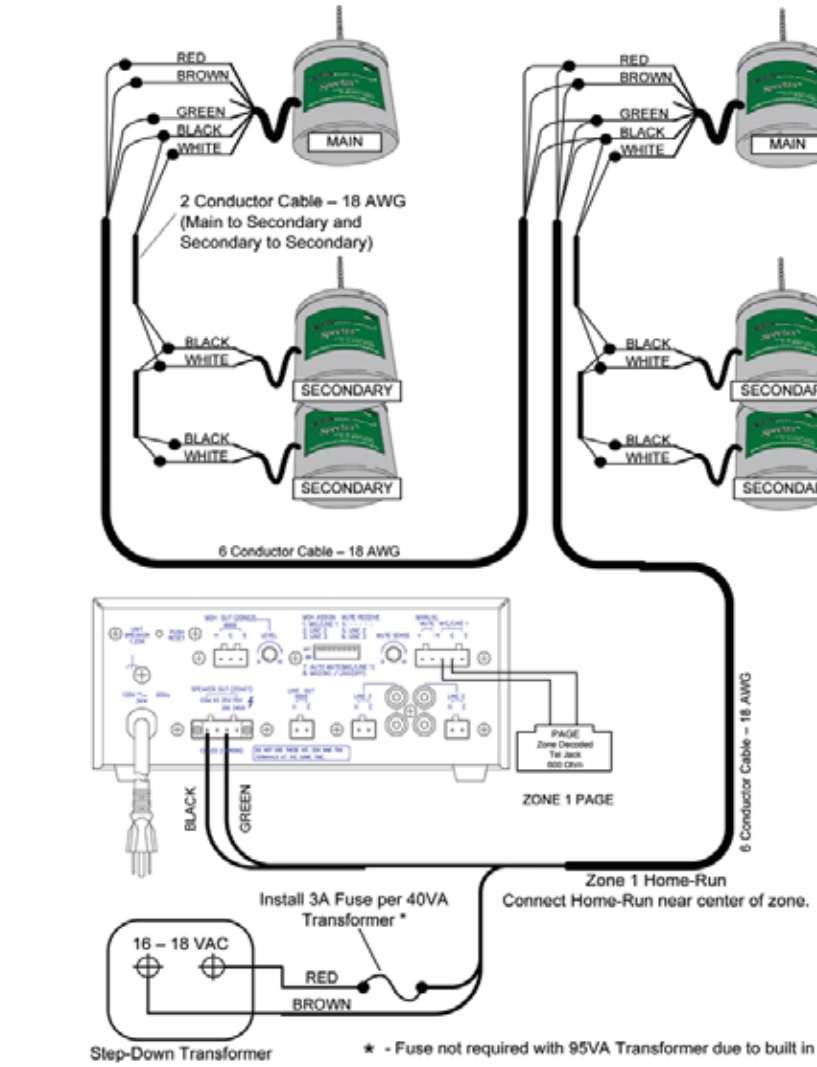


FIG. C WIRING DIAGRAM – 1 PWR. ZONE, NO CVC OR TIMER, 1 ZONE PAGE/MUSIC



★ - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. D WIRING DIAGRAM – 1 PWR. ZONE, 1 CVC, 1 ZONE PAGE/MUSIC

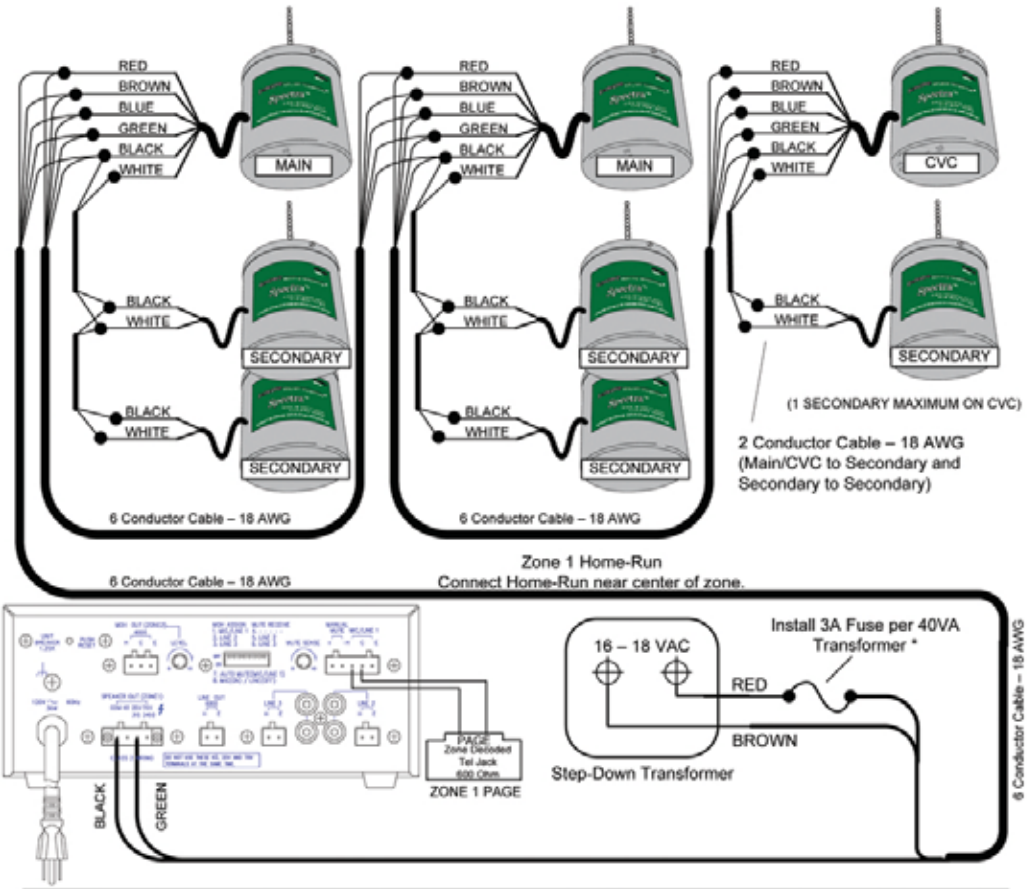
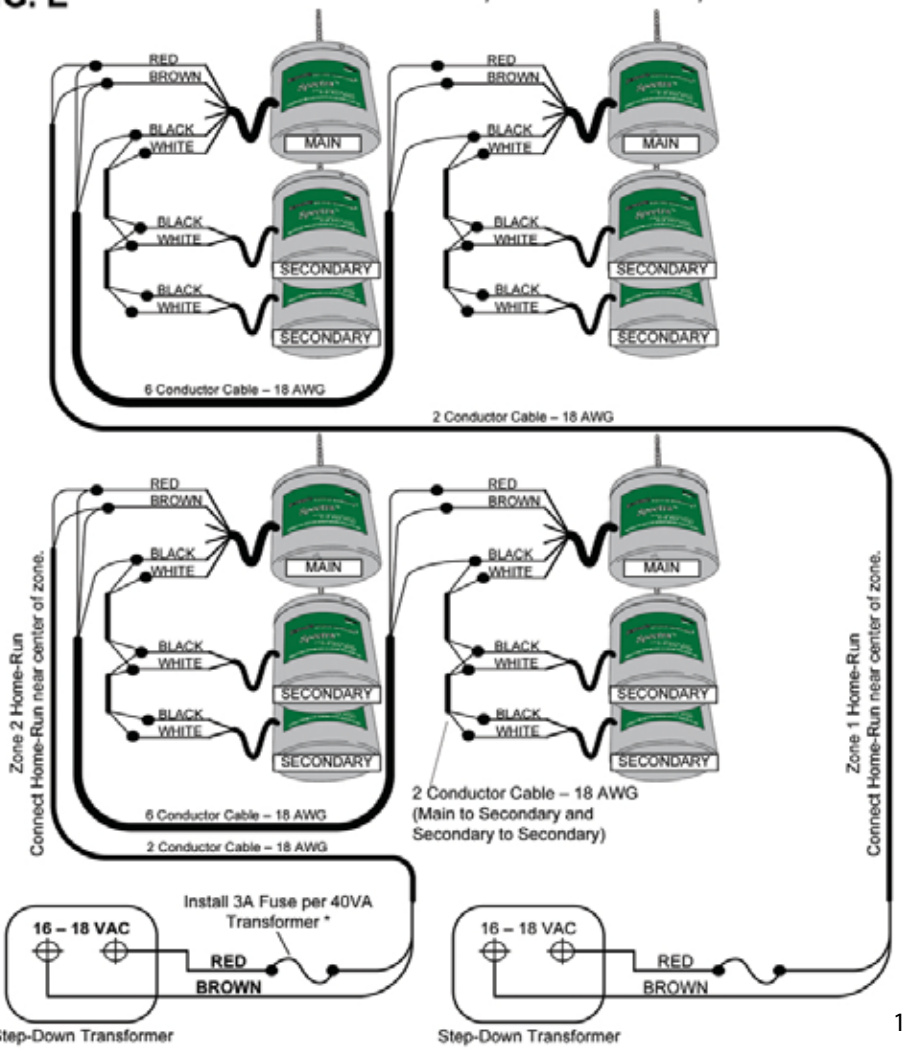
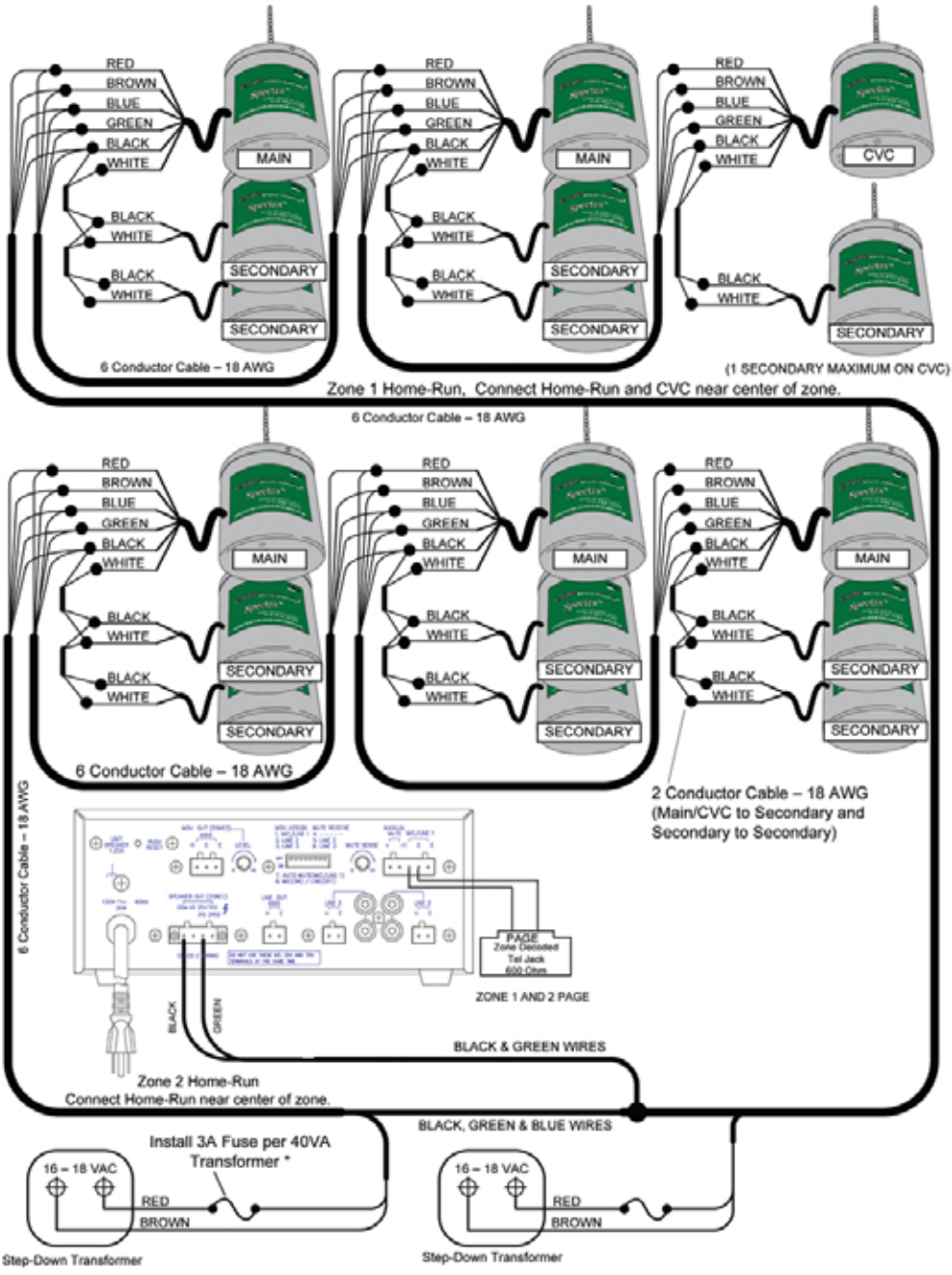


FIG. E WIRING DIAGRAM – 2 PWR. ZONES, NO CVC OR TIMER, NO PAGE/MUSIC



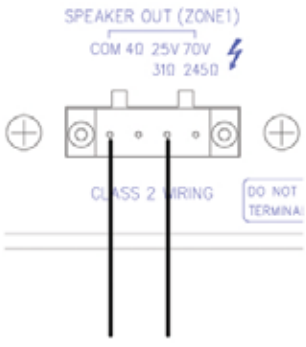
* - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. F WIRING DIAGRAM – 2 PWR. ZONES, 1 CVC, ALL ZONE PAGE/MUSIC



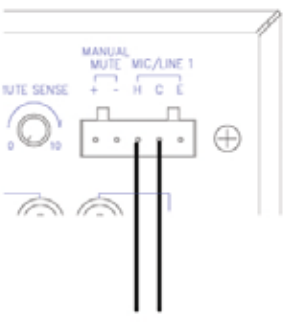
* - Fuse not required with 95VA Transformer due to built in circuit breaker.

Amplifier



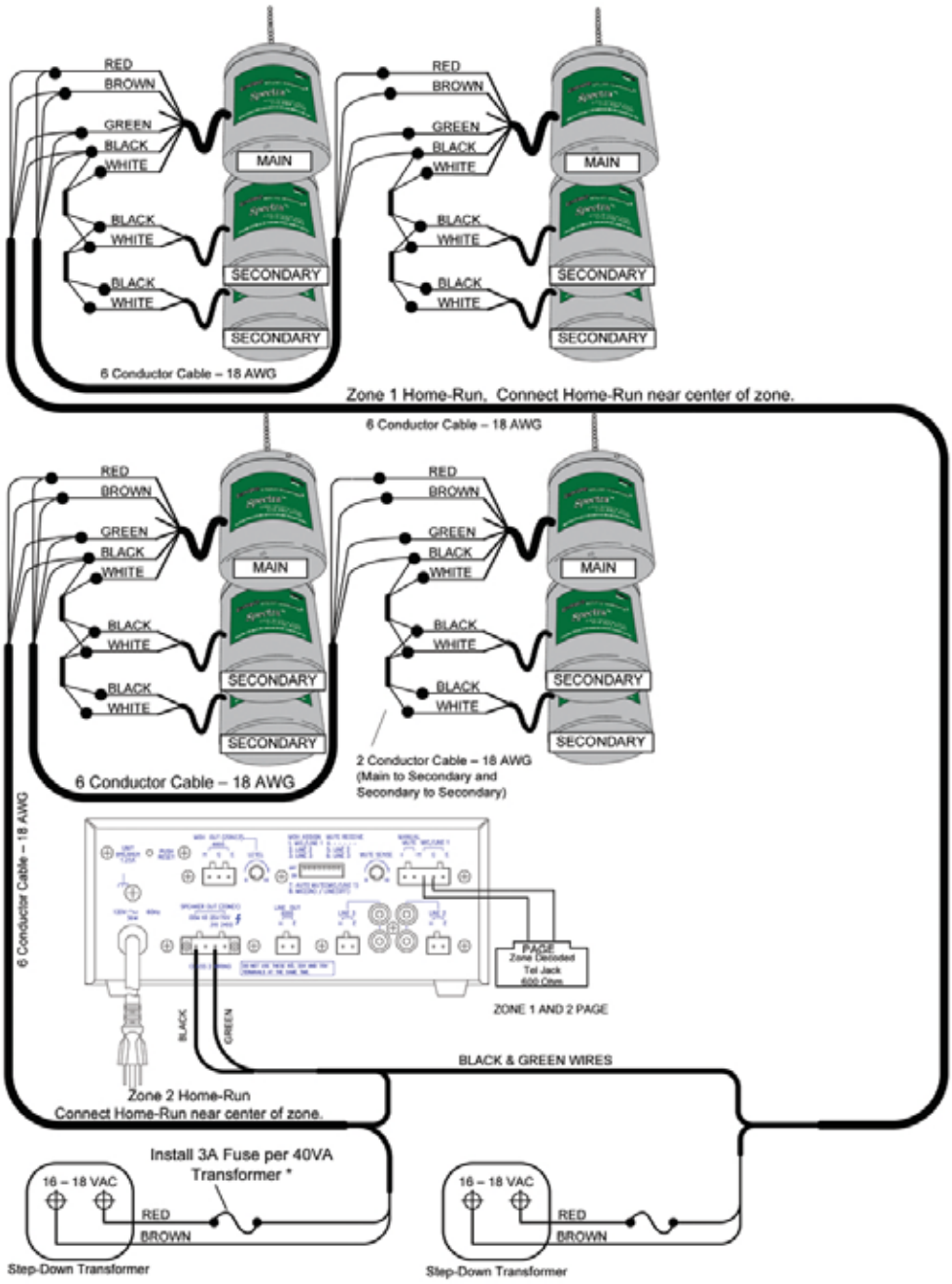
Audio output wiring

Amplifier



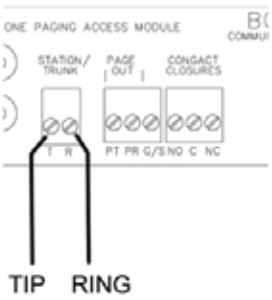
Paging input wiring

FIG. G WIRING DIAGRAM – 2 PWR. ZONES, NO CVC OR TIMER, ALL ZONE PAGE/MUSIC



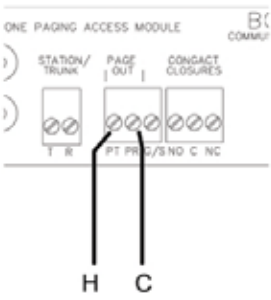
* - Fuse not required with 95VA Transformer due to built in circuit breaker.

TAMB2 Module



Telephone input wiring

TAMB2 Module



Page output to amplifier wiring

FIG. H WIRING DIAGRAM – 2 PWR. ZONES, 1 CVC, NO PAGE/MUSIC

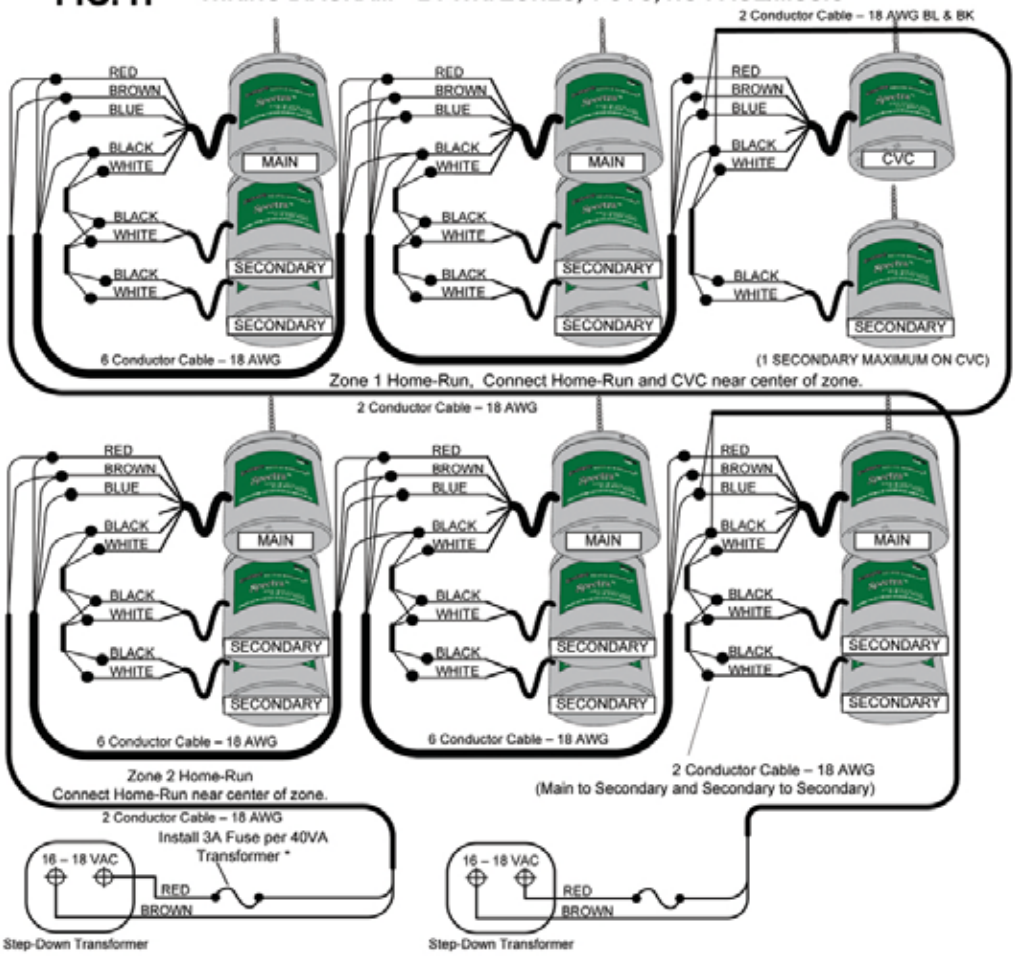
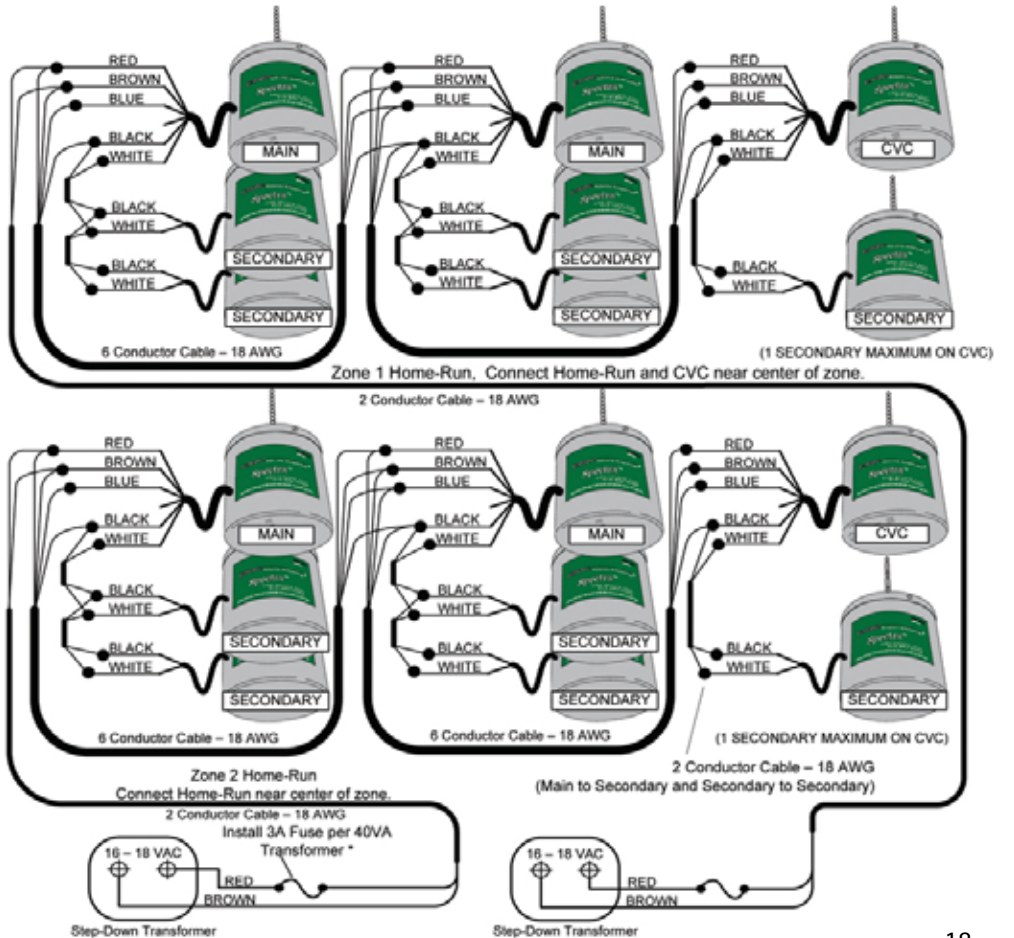
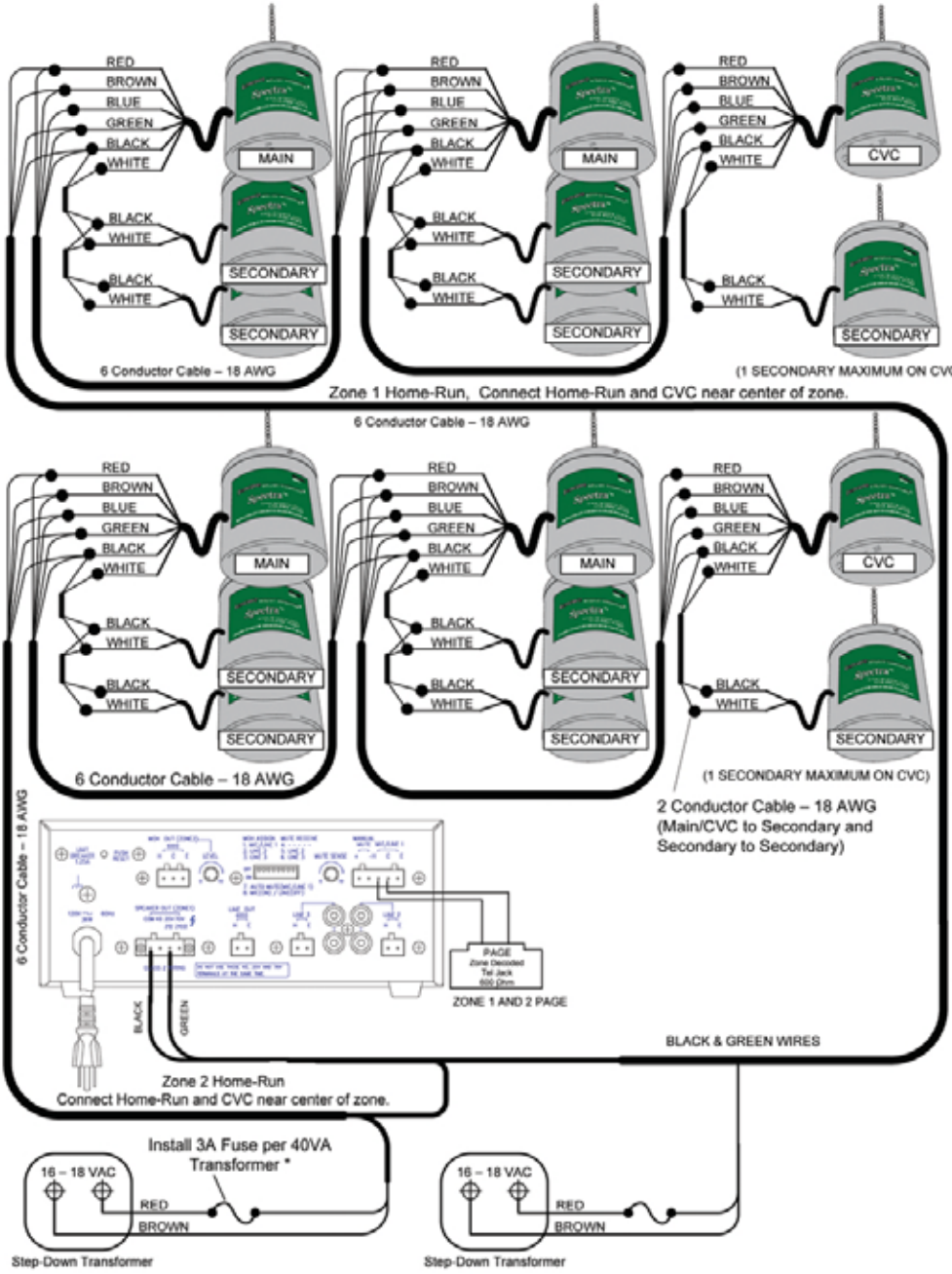


FIG. I WIRING DIAGRAM – 2 PWR. ZONES, 2 CVC'S, NO PAGE/MUSIC



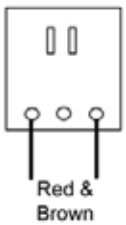
* - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. J WIRING DIAGRAM – 2 PWR. ZONES, 2 CVC'S, ALL ZONE PAGE/MUSIC



* - Fuse not required with 95VA Transformer due to built in circuit breaker.

Notes:



Plug-in transformer:
Center terminal is
not used.

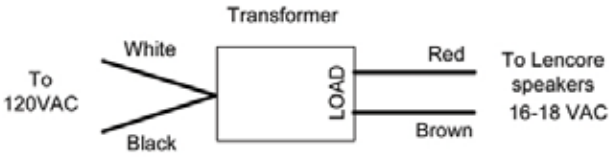
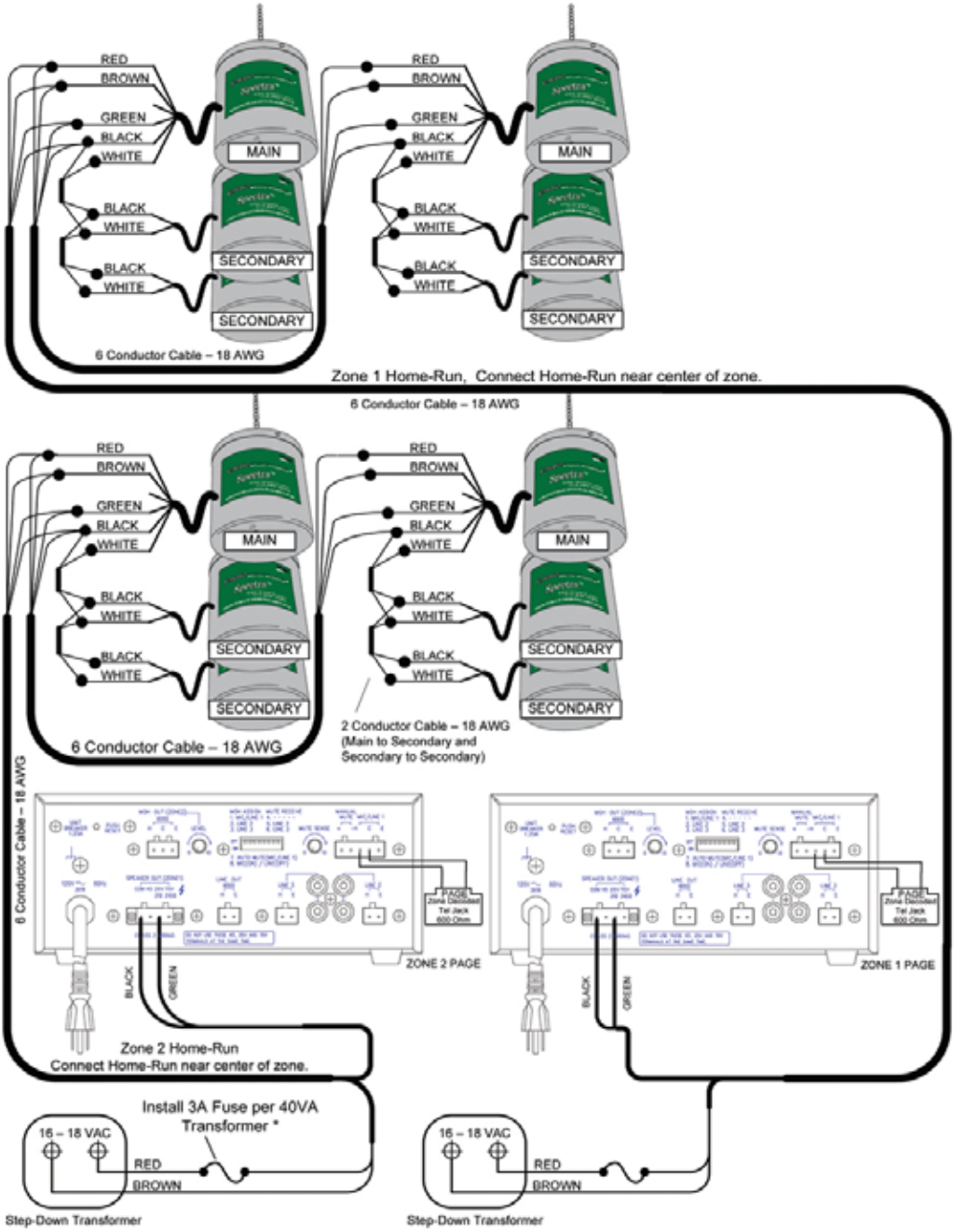


FIG. K WIRING DIAGRAM – 2 PWR. ZONES, NO CVC OR TIMER, 2 ZONE PAGE/MUSIC



★ - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. L WIRING DIAGRAM – 1 PWR. ZONE, 1 TIMER, NO PAGE/MUSIC

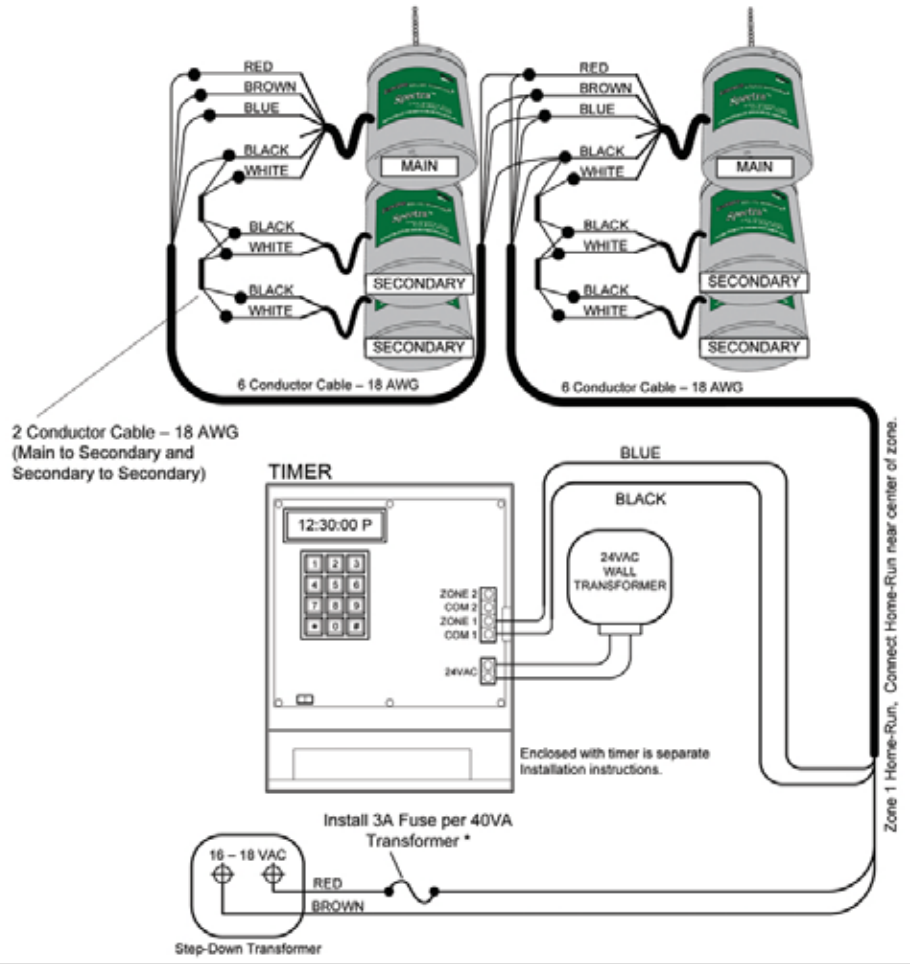
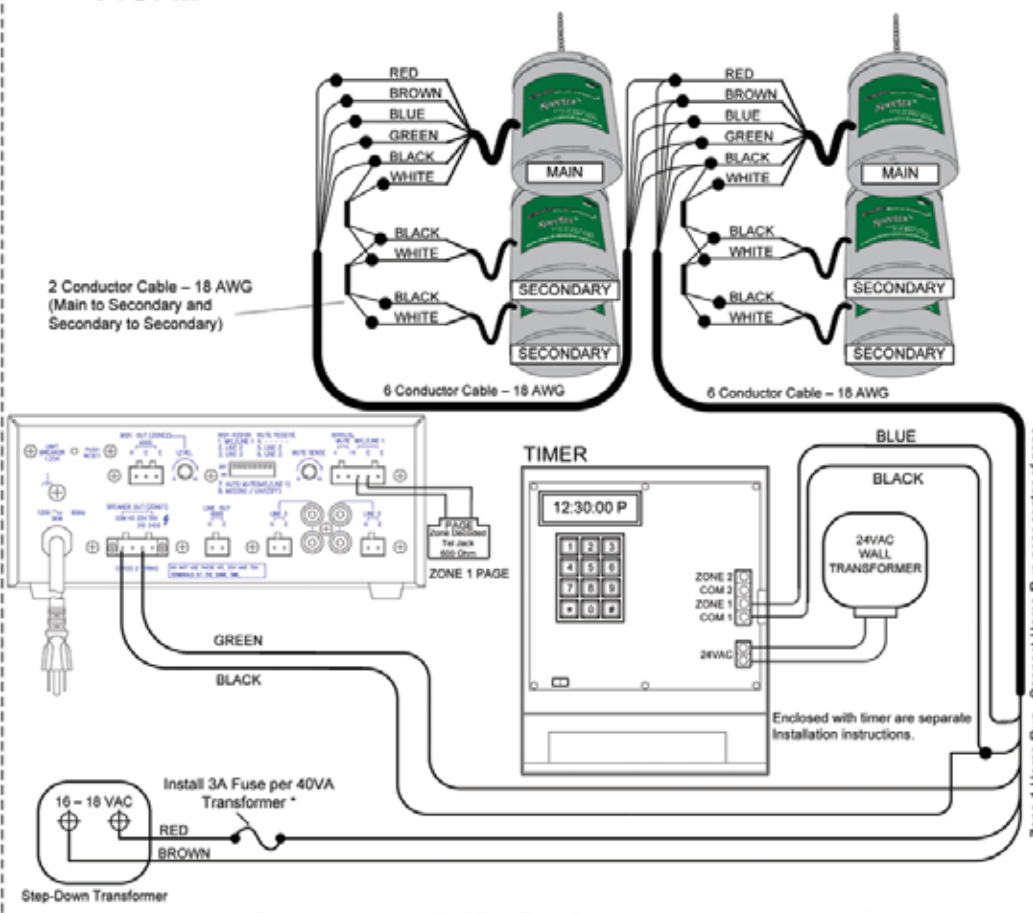
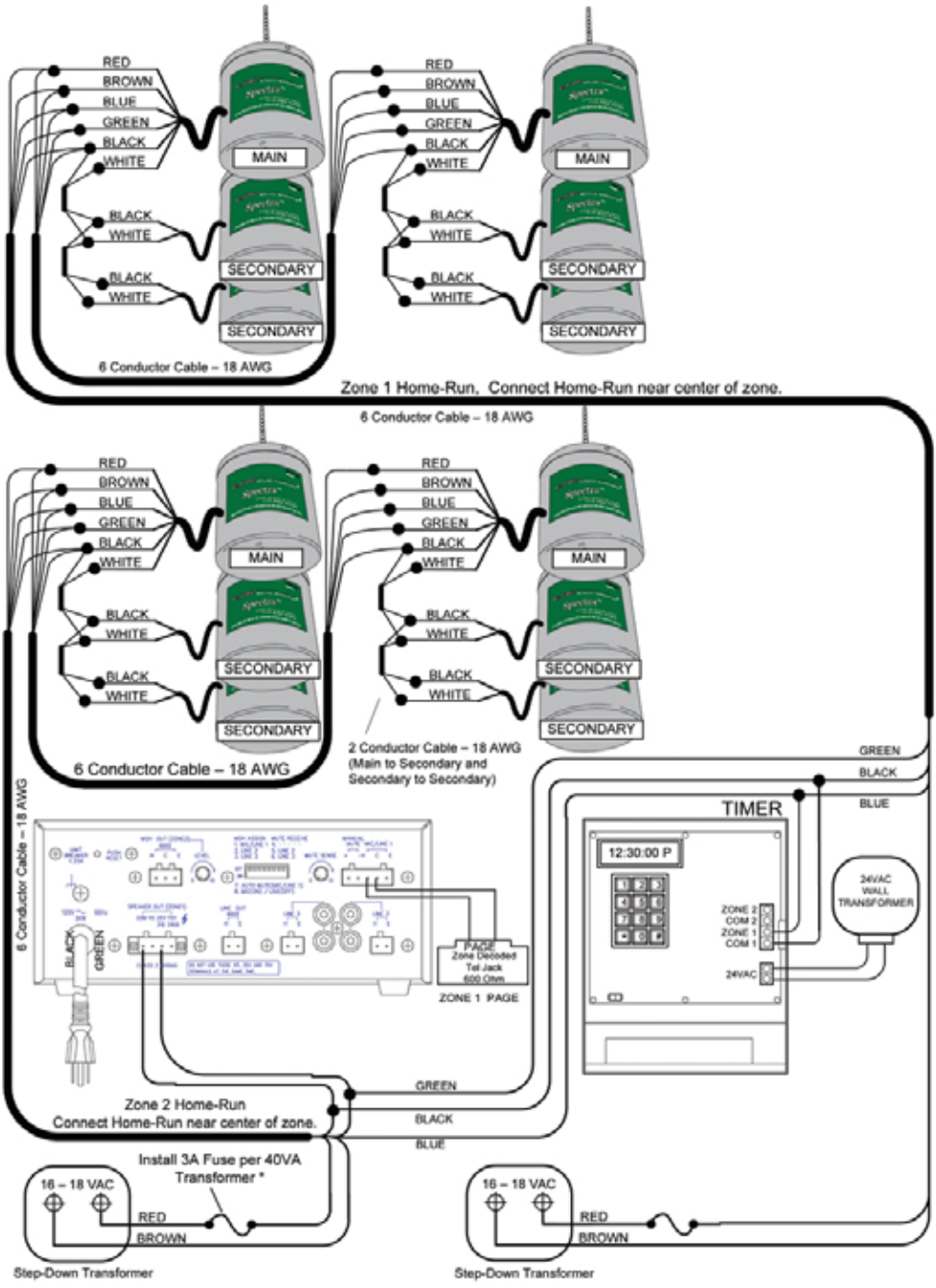


FIG. M WIRING DIAGRAM – 1 PWR. ZONE, 1 TIMER, 1 ZONE PAGE/MUSIC



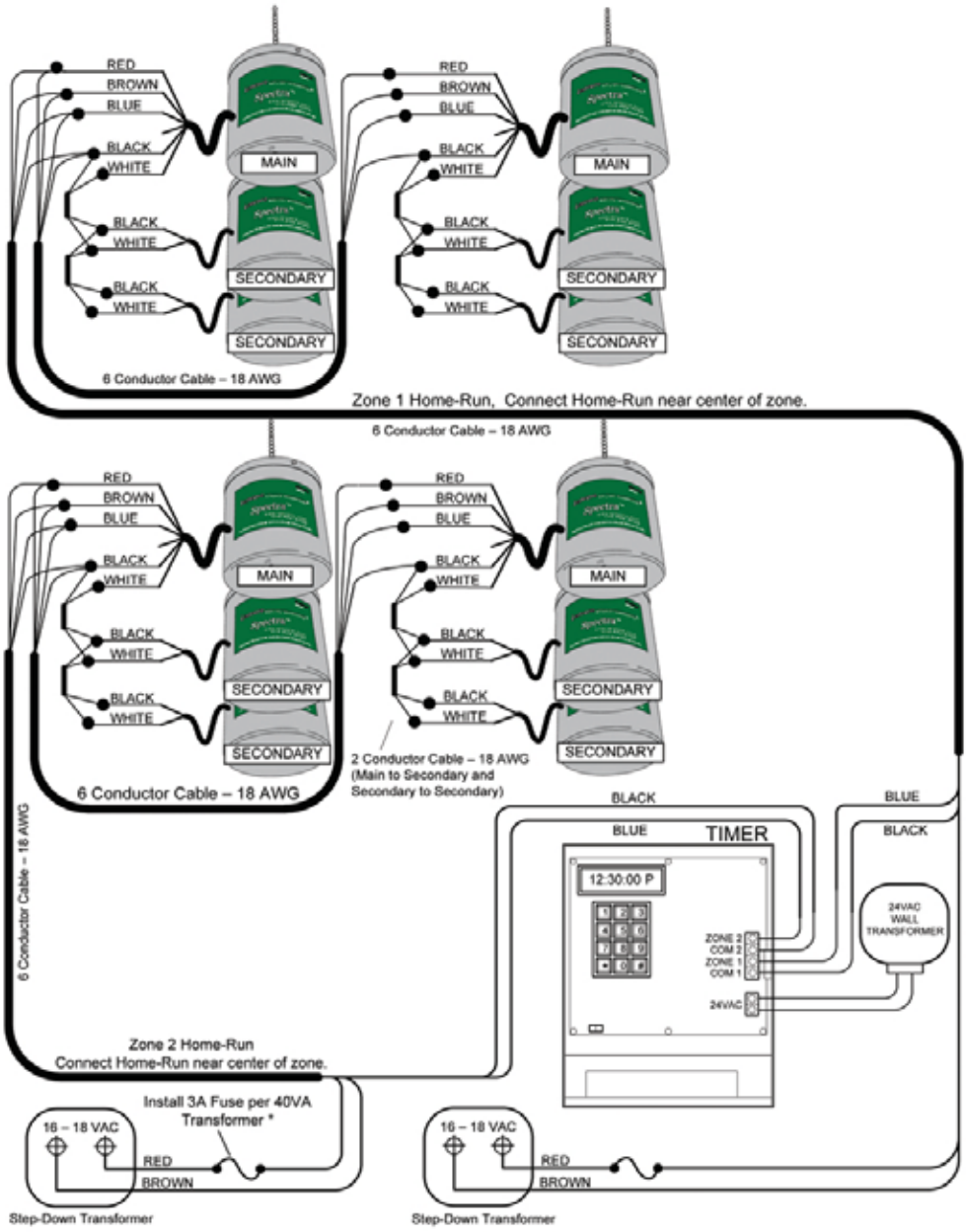
★ - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. N **WIRING DIAGRAM – 2 PWR. ZONES, 1 TIMER TO ALL ZONES, ALL ZONE PAGE/MUSIC**



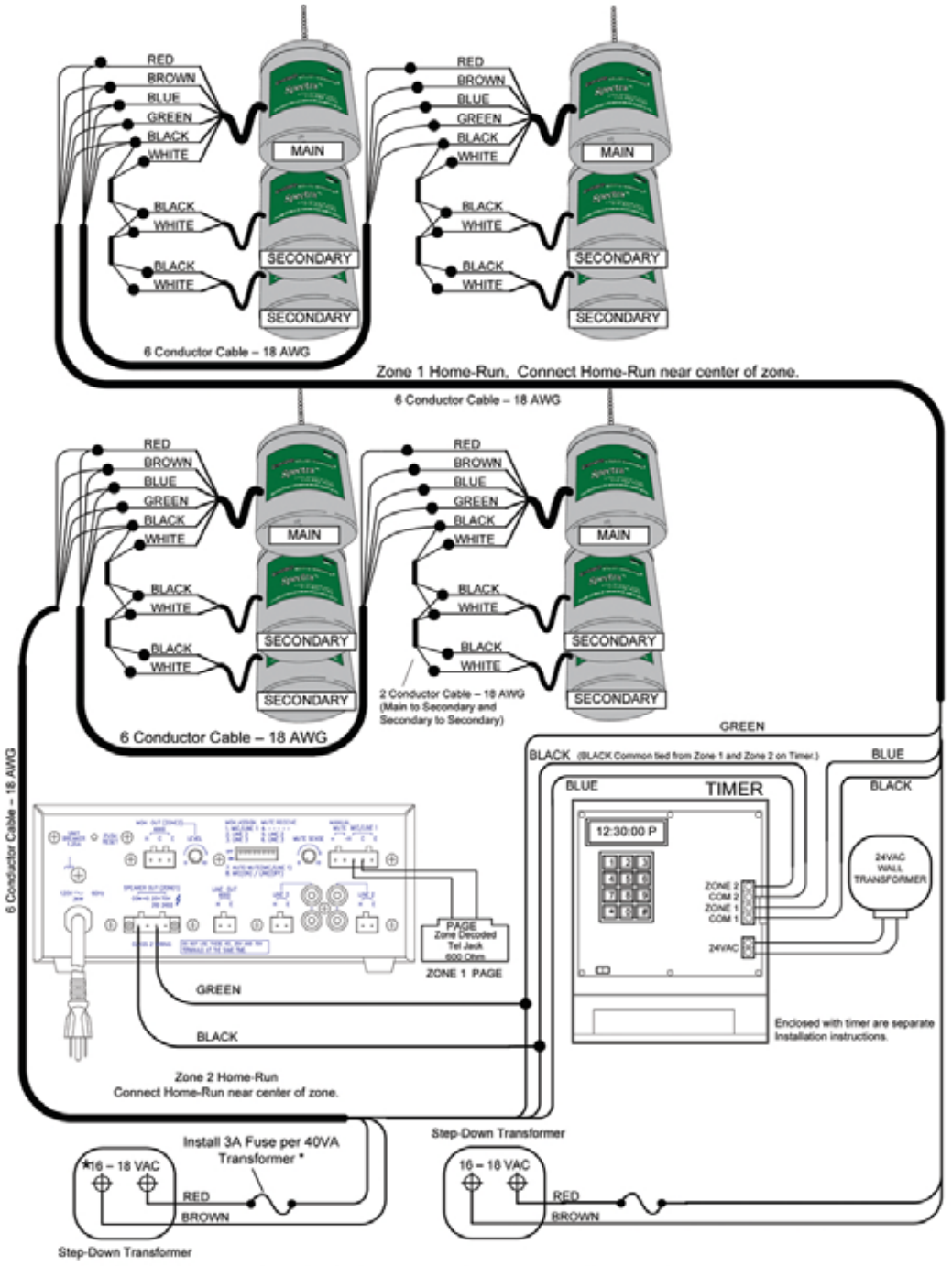
★ - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. O WIRING DIAGRAM – 2 PWR. ZONES, 2 ZONE TIMER, NO PAGE/MUSIC



* - Fuse not required with 95VA Transformer due to built in circuit breaker.

FIG. P WIRING DIAGRAM - 2 PWR. ZONES, 2 ZONE TIMER, ALL ZONE PAGE/MUSIC



- Fuse not required with 95VA Transformer due to built in circuit breaker.

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