

Instruction for Installation, Operation and Maintenance of "WSR" Interlocked Receptacles: 30, 60 & 100 Ampere

"WSR" SERIES:

Heavy duty single throw safety switch with interlocked Appleton Powertite[®] compatible receptacle .

COMPLIANCES:

UL Listed, File No. 145917
UL498 - Attachment Plugs and Receptacles
UL98 - Enclosed and Dead-Front Switches
UL50 - Enclosures for Electrical Equipment
NEC wire bending space, Table 373-6(b).

ELECTRICAL RATINGS:

Maximum Voltage: 600VAC at 60 Hz, 250 VDC 30, 60 or 100 Amperes, depending on current rating of product.
(See product nameplate for details)

Read instructions carefully and with full understanding for safe installation and operation.

STANDARD FEATURES:

- Epoxy coated finish on receptacle and disconnect switch housing.
- Current carrying parts in housing are all plated copper
- Lugs - front removable, standard mechanical lugs on incoming line. Lay-in ground lug.
- Screw cover assembly provided for 60 & 100 Ampere units which can be used on receptacle housing, instead of flip cover assembly to meet certain environmental conditions.

OPTIONS:

- Electrical Interlocks -1 N.O., 1 N.C. or 2 N.O., 2 N. C.

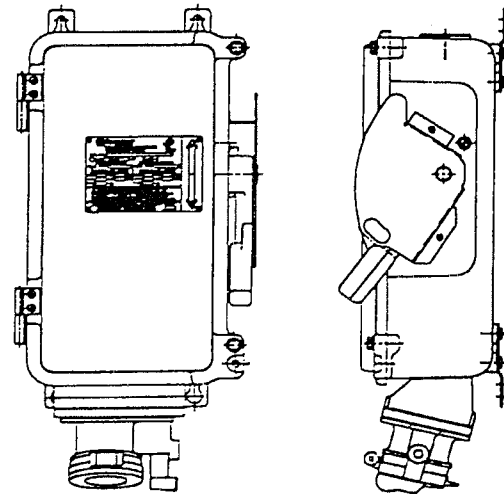
MODIFICATION WARNING

Do not modify these devices in anyway. Replace any missing or broken parts with the proper replacement parts from Appleton Electric. Modification of these devices or substitution of parts with non-standard parts may result in serious/fatal personal injury from electrocution.

TABLE A HORSEPOWER RATING:

| DC VOLTS | AC VOLTS | AMP | CATALOG NUMBERS | SWITCH TYPE | HORSEPOWER RATINGS | | | |
|----------|----------|-----|-----------------|-------------|--------------------|------|--------|------|
| | | | | | AC | | DC | |
| | | | | | STAND. | MAX. | STAND. | MAX. |
| 250 | 600 | 30 | WSR3352 | FUSED | 7.5 | 20 | 5 | --- |
| 250 | 600 | 30 | WSR33542 | NON-FUSED | --- | 20 | --- | 5 |
| 250 | 600 | 60 | WSR6352 | FUSED | 15 | 50 | 10 | --- |
| 250 | 600 | 60 | WSR63542 | NON-FUSED | --- | 50 | --- | 10 |
| 250 | 600 | 100 | WSR10352 | FUSED | 30 | 75 | 20 | --- |
| 250 | 600 | 100 | WSR103542 | NON-FUSED | --- | 75 | --- | 20 |

FIGURE A



Except as expressly provided by Appleton Electric Company (Appleton) in writing, Appleton products are intended for ultimate purchase by industrial users and for operation by persons trained and experienced in the use and maintenance of this equipment and not for consumers or consumer use. Appleton warranties do not extend to, and no reseller is authorized to extend Appleton's warranties to, any consumer.

ELECTRICAL WARNING

Electrical power must be turned **OFF** before and during installation and maintenance. **Failure to do so may result in serious / fatal injuries due to electrocution.**

DAMAGE WARNING

If any parts of the "WSR" unit or the mating plug appear to be missing, broken or show signs of damage:

DISCONTINUE USE IMMEDIATELY

This condition could cause serious/fatal personal injury due to electrocution and/or equipment damage. Repair replacement part(s) before continuing service with the proper replacement part(s) before continuing service

WARNING

The "WSR" receptacles are designed and tested for use with copper conductors only. **DO NOT** use aluminum wiring, as dangerous overheating and fire may result.

WARNING

Not suitable for use as service equipment.

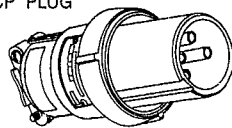
APPLICATION:

- Designed to supply power to portable or fixed electrical equipment such as welders, infrared ovens batch feeders, conveyors and truck and marine docks.
- Designed to supply three (3) phases grounded electrical power to the aforementioned electrical equipment.
- Designed to provide an interlocked receptacle for use in ordinary (non-hazardous) locations as defined in the National Electric Code (NEC). In additional the receptacle is designed such that a mating plug can only be engaged and disengaged when the switch handle is in the **OFF** position.
- Ideal for use on shipping docks, ports and other "ship to shore" applications.
- Suitable for use in locations that require a degree of protection from the elements (NEMA Type 3, 3R or 12 for the units that have the receptacle flip cover installed and (NEMA Type 3, 3R, 4, 4X & 12) that have the screw cover installed (60 & 100 Ampere only).
- Enclosure cover is gasketed to seal cover against the enclosure housing.
- The receptacle face of the 60 & 100 Ampere units is threaded to allow mating plugs to thread onto it for a weather-proof union.
- WSR Series Interlocked receptacles may be pole mounted or installed on flat vertical surfaces.

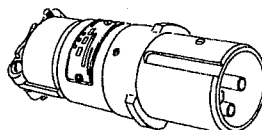
TABLE B

"ACP" & "CPH" PLUGS FOR "WSR" RECEPTACLES

ACP PLUG



CPH PLUG



| CABLE DIAMETER (INCHES) | CURRENT RATING | PLUG CATALOG NUMBER |
|---------------------------|----------------|---------------------|
| .390-1.375 | 30 | ACP3034BC |
| .500- .875 | 30 | CPH3034B |
| .500-1.375 | 60 | ACP6034BC |
| .500- .750 | 60 | CPH6034A |
| .750-1.000 | 60 | CPH6034B |
| 1.000-1.375 | 60 | CPH6034C |
| .390-1.375 | 60 | CPH6034BC |
| .875-1.906 | 100 | ACP1034CD |

TABLE C

TIGHTENING TORQUE - DISCONNECT SWITCH LUG SCREWS

| WIRE SIZE (AWG) | TORQUE (LB.-IN.) |
|-----------------|------------------|
| 10-14 | 35 |
| 8 | 40 |
| 4-6 | 45 |
| 0-3 | 50 |

FIGURE B

CONTACT PHASE IDENTIFICATION MARKINGS:

Assembly View With Cover Removed - Unit Shown is Catalog Number WSR6352

ELECTRICAL WARNING

Electrical power **MUST BE** turned **OFF** before and during installation and maintenance. **Failure to do so may result in serious / fatal injury due to electrocution.**

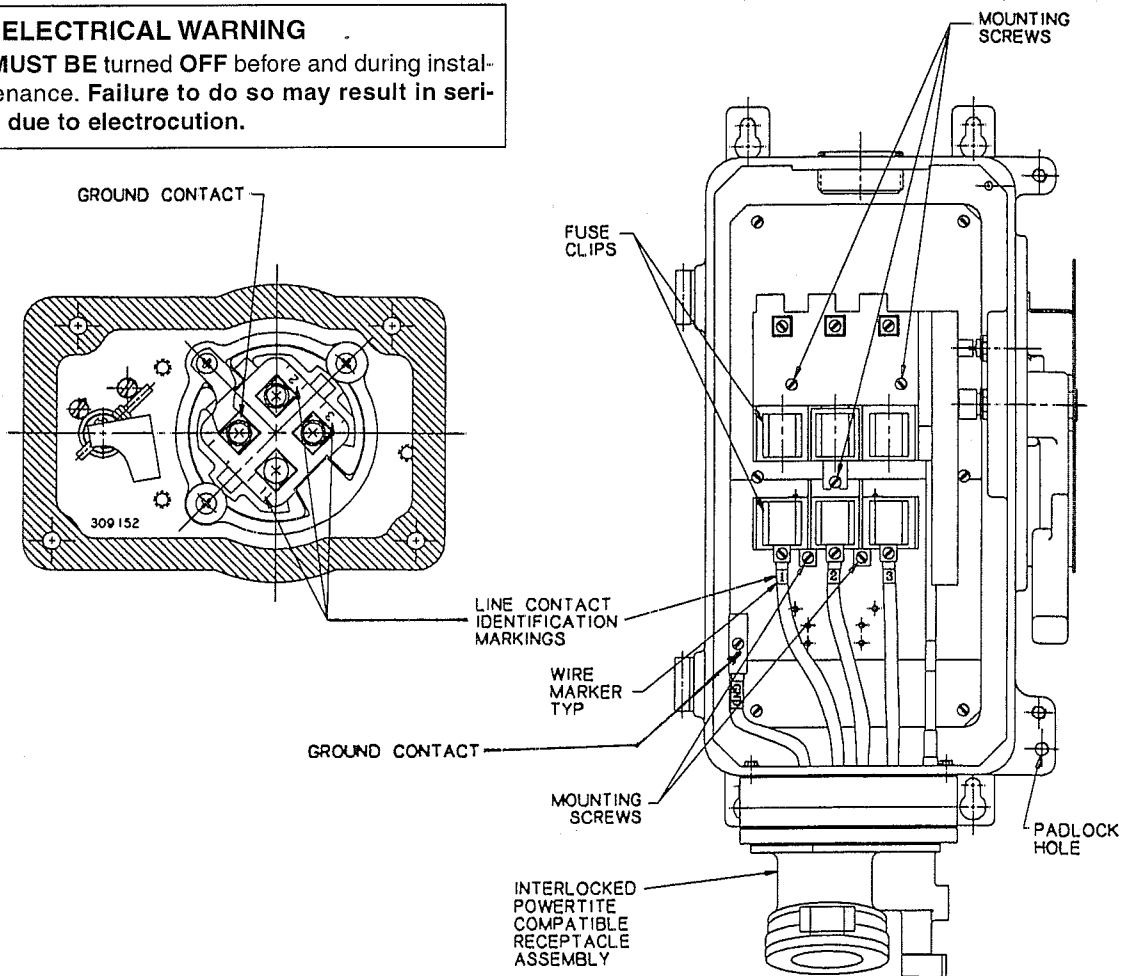
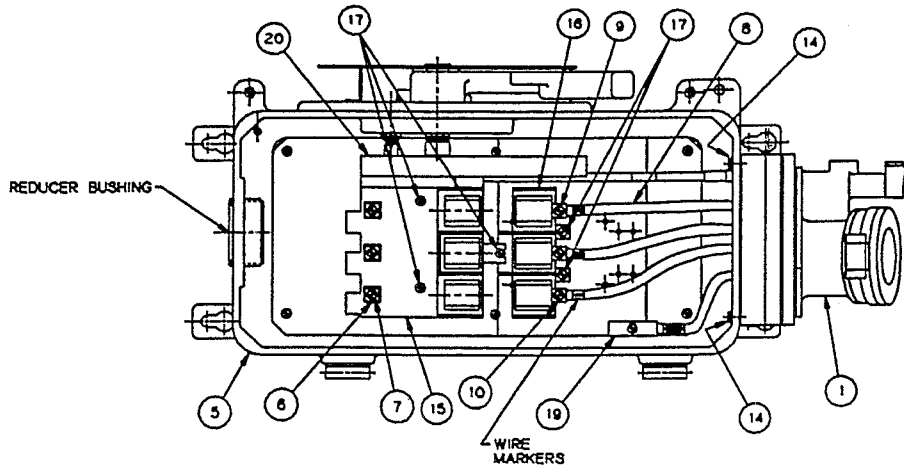
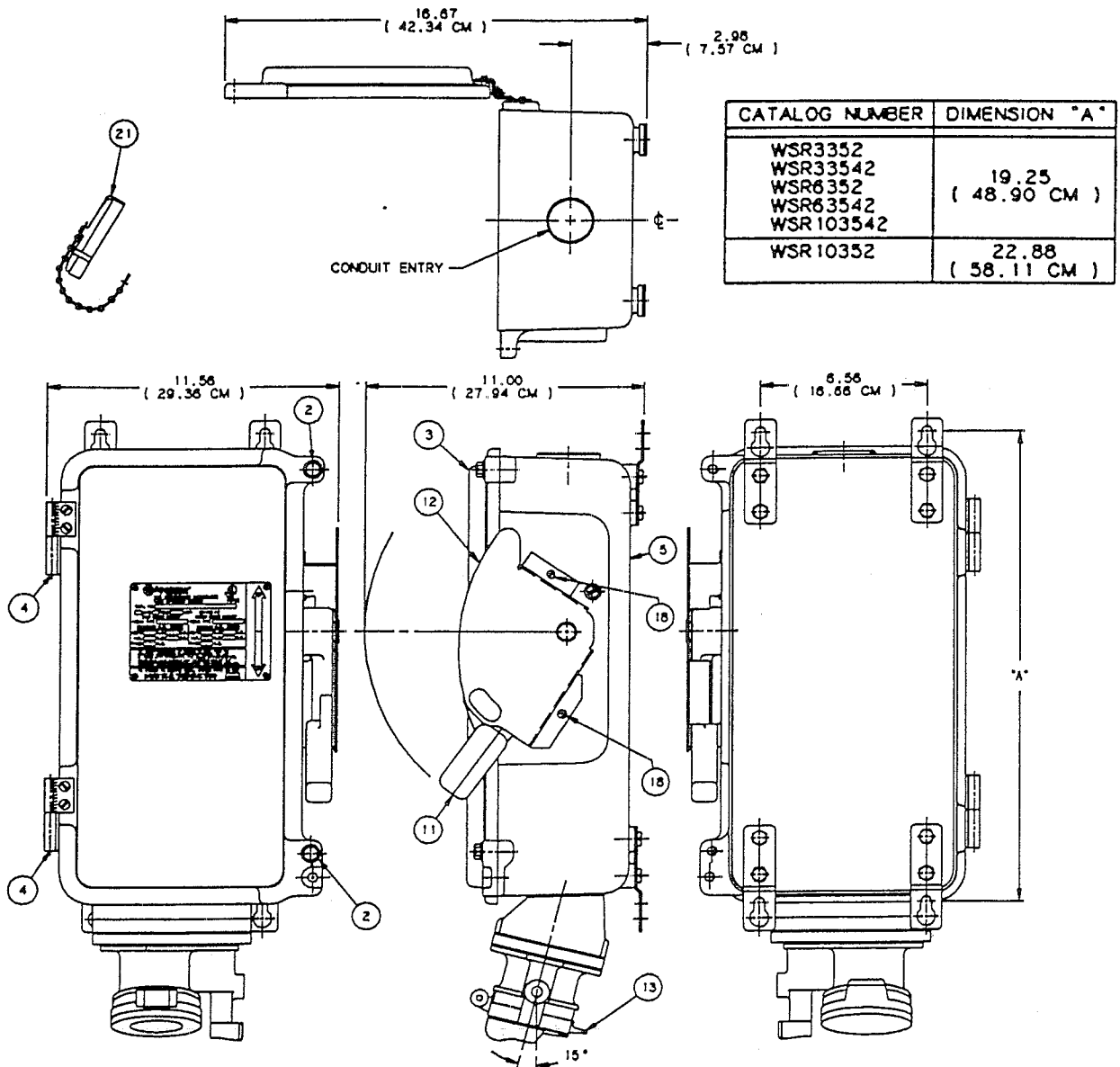


FIGURE C

WSR INTERLOCKED RECEPTACLE - 30, 60, & 100 AMP



ASSEMBLY VIEW WITH COVER REMOVED - UNIT SHOWN IS CATALOG NUMBER WSR6352



INSTALLATION INSTRUCTIONS FOR "WSR" SERIES RECEPTACLES: 30, 60 & 100 AMP

INSTALLATION

1. PREPARE MOUNTING POSITION:

Owners are responsible for damages or injuries if these rules are not followed.

WARNING

- Before starting with the installation, make sure the receptacle assembly is suitable for the intended location according to the National Electrical Code or Canadian Electrical Code.
- If the receptacle assembly is not suitable, serious damage and injuries may result.

- A. The receptacle assembly must be mounted on (4) 3/8" max. diameter steel, hex-head bolts per ANSI B18.2.1 - 1981, securely fastened to wall, column, strut or other vertical structure, in one plane, capable of supporting the receptacle, its associated conduit and wiring. Please note that these bolts are not provided with the receptacle assembly.
- B. Referring to "FIGURE C" for dimensions of the "WSR" receptacles, prepare the structure for the mounting bolts by drilling, tapping, securing nuts or another method of providing threaded anchors for the bolts.
- C. Install the bolts leaving 3/8" to 1/2" under the heads.
 - The bolts must be engaged at least five (5) full threads.

2. MOUNTING THE RECEPTACLE:

- A. Place the receptacle assembly on the previously prepared mounting bolts, with the receptacle face (1) at the lower-most position (See FIGURE C). Make sure that the shank of the bolts is in the small part of the key-hole slots in all four cases. Tighten the bolts to 18 to 20 lbs-ft torque.

3. OPENING HOUSING COVER:

- A. Referring to "FIGURE C", loosen the housing cover bolts (2), but do not attempt to remove them completely from the cover (3) because they are designed to be captive.
- B. The cover (3) is now free to swing open on its factory installed hinges (4).
- C. Although it is not necessary, the cover (3) can be removed from the housing (5) by carefully lifting the cover enough to clear the hinge pins; approximately .90 inches.
- D. It is recommended that if removed, the cover be placed outer surface down on clean wood. Then protect with a tarp or other covering to maintain cleanliness and damage-free conditions.

4. CONDUIT INSTALLATION:

- A. Note that a 1 1/2" NPT conduit entry is provided on the top of the housing (5). An 1 1/2" to 1 1/4" and an 1 1/2" to 1" reducer bushings are also provided and can be used if desired.
- B. Make sure that conduit entry is clean and free of debris before installing conduit or reducer bushing.
- C. Grease must be used on conduit and reducer bushing threads to completely seal out water.
 - * Appleton Electric Company thread lubricant, part no. TLC-3, is recommended to be applied on threads in three generous lines running parallel to the thread axis and spaced equidistant around the thread.
- D. Conduit must be turned in until snug and then 1/2 turn further with a wrench.
 - * Do not over-tighten as damage to the threads in the housing or reducer bushing may occur.

5. WIRING:

WARNING

- The "WSR" receptacles are designed and tested for use with copper conductors only.
- DO NOT USE ALUMINUM WIRING as dangerous overheating and fire may result.

WARNING

Electrical power must be turned "off" before and during installation and maintenance.
Failure to do so may result in serious / fatal injuries due to electrocution.

10. OPERATION:

A. The receptacle can now be turned to the "ON" position by lifting the operating handle (11) to the upper-most position.

Please note that the receptacle can be turned "ON" with or without a mating plug engaged.

- **Safety feature** - The receptacle is interlocked to the operating handle mechanism so that a mating plug may not be inserted or removed when the switch is in the "ON" position.

B. A hole is provided in the housing lock-out (12) and operating handle (11) for the use of a padlock (See "FIGURE C") to prevent unauthorized movement of the operating handle (11) from the "OFF" position.

11. MAINTENANCE:

A. **INSPECTION:** Receptacle must be inspected regularly. Schedule of inspections is determined by frequency of use and environmental conditions.

- It is recommended that inspections be carried out at least once a year.

WARNING

If any parts of the "WSR" unit or the mating plug appear to be missing, broken or show signs of damage:

DISCONTINUE USE IMMEDIATELY !

This condition could cause serious/fatal personal injury due to electrocution and/or equipment damage. Repair with the proper replacement part(s) before continuing service.

DURING THE INSPECTIONS, PERFORM AT LEAST THE FOLLOWING:

1. Electrical power must be turned "OFF" before performing maintenance.
2. Inspect all conductor terminations for secureness.
 - Retorque to values given previously in these instructions.
 - Discoloration due to excessive heat is an indication of possible problems and should be thoroughly investigated and repairs made as necessary.
3. Check grounding and bonding effectiveness/continuity.
 - **Retorque connections to original values.**
4. Check gaskets for damage. Replace as necessary.
5. Clean interior of all foreign materials.
6. Cover bolts (2) must be tightened to 25 - 30 lbs.-ft. torque.
7. Make sure that receptacle assembly flip-cover (13) seals cover to receptacle housing face, if applicable.
8. If applicable, make sure that receptacle assembly screw cover (21) seals cover to receptacle housing face.
9. Make sure the receptacle assembly nameplate located on the outside of the cover remains clean and legible.
 - **Do not paint nameplate.**

- It is recommended that an electrical preventive maintenance program, such as found in the National Fire Protection Bulletin NFPA no. 70B, be followed in addition to the above.

B. DISCONNECT SWITCH AND HANDLE ASSEMBLY:

Disconnect switches occasionally fail with use and need to be replaced. The disconnect switch utilized in this receptacle can be replaced with the same type and brand as factory installed. Doing so will not affect the U/L listing .

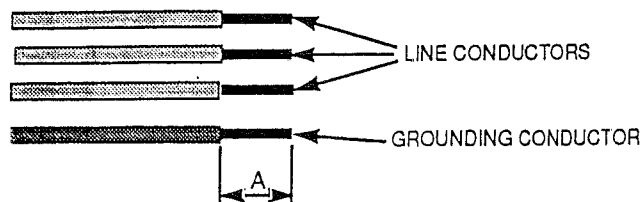
To remove disconnect switch from housing -

- Referring to "FIGURE C", remove the two handle lock-out screws (18) and remove housing lock-out (12) by lifting it off of unit.
- Remove operating handle (11) from disconnect switch mechanism assembly (20) by carefully lifting off of assembly.
- Loosen the line side lug screws (7) of the disconnect switch and remove line side wires from the switch (15).
- Loosen the load side lug screws (9) of the disconnect switch and remove wires from the switch (15). Please take note of the orientation of these wires for proper reassembly. Also note that the wires (8) that connect the receptacle to either the disconnect switch directly for the non-fused switches, or connect the receptacle to the fuse block lugs (10) for the fuse switches are numbered according to phase location (See "FIGURE B")
- Remove disconnect switch and fuse base (if applicable) mounting screws (17) . Remove disconnect switch (15) and fuse base (if applicable) (16) from housing (5).

5. WIRING (CONTINUED):

TABLE D: TERMINAL WIRE RANGE AND STRIPPING GUIDE

| AMPERE RATING | STRIP LENGTH (INCHES) | TERMINAL WIRE RANGE (AWG) |
|---------------|-----------------------|---------------------------|
| | CONDUCTOR "A" | BUILDING WIRE |
| 30 | .63 | #14 - #2 (Cu) |
| 60 | .63 | #6 - #2 (Cu) |
| 100 | .63 | #4 - #1/0 (Cu) |



- A. Referring to "FIGURE C", feed power supply wiring into housing (5) through conduit entry.
- B. Strip the individual conductors per "TABLE D".
- C. Connect wires to the line side lugs (6) of the disconnect switch by loosening, but not removing, lug screws (7). Insert conductors including all strands into lugs according to your established wiring scheme. Tighten lug screws (7) to the appropriate value shown in "TABLE C". Please note the wire markers on the wires (8) connected between the receptacle (1) and either the disconnect switch load side lugs (9) or fuse block lugs (10). These wire markers correspond to the contact identification markings found on the back of the receptacle contact block. Refer to "FIGURE B".

6. ELECTRICAL TESTING:

All wiring must be checked and tested to ensure that all circuits are according to plan and that there are no unwanted opens, shorts or grounds.

Do not apply power until the following steps are completed:

- A. Test to verify correct phasing and ground connections.
- B. Test insulation resistance by meggering, high voltage or hi-pot test, to be sure the system does not have any short circuits or unwanted grounds.

7. CLEAN COVER AND HOUSING:

Before closing the cover (3), it is strongly recommended that all dirt, debris and other foreign materials be removed from the interior.

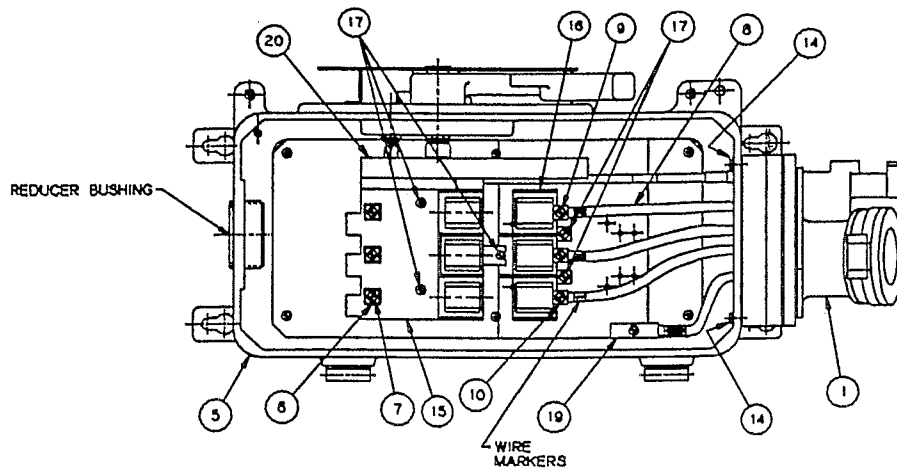
- This action should be taken to help eliminate the possibility of unwanted shorts or grounds.
- Make sure the cover gasket surface is clean and free of any tears or damage.
- Clean the mating surface of the housing (5) in the same manner as the cover (3).

8. CLOSE COVER:

- A. If the cover (3) was removed, carefully rehang the cover on the hinges (4) while the cover is positioned approximately 90 degrees from the housing.
- b. Close the cover (3). Start the two housing cover bolts (2) by hand to prevent cross-threading.
 - Tighten the cover bolts to 25 - 30 lbs.-ft. torque
 - Do not over-tighten since there is a possibility of stripping threads in the housing.

9. POWER:

With all electrical tests made, the cover bolts tightened and the receptacle turned "off", power may be applied to the "WSR" unit.

FIGURE C**WSR INTERLOCKED RECEPTACLE - 30, 60, & 100 AMP****To replace disconnect switch into housing -**

- Referring to "FIGURE C", replace the disconnect switch assembly into housing by reversing the steps taken to remove it. Make sure to reconnect the wires to the same locations as before disassembly. Replace fuses, if necessary, for fused receptacle.
- Torque the mounting screws (17) to 15 - 20 lb.-in. torque.
- Torque the line side lug screws (7) & the load side lug screws (9) to the appropriate values shown in "TABLE C".

TABLE E**DISCONNECT SWITCH GROUPS**

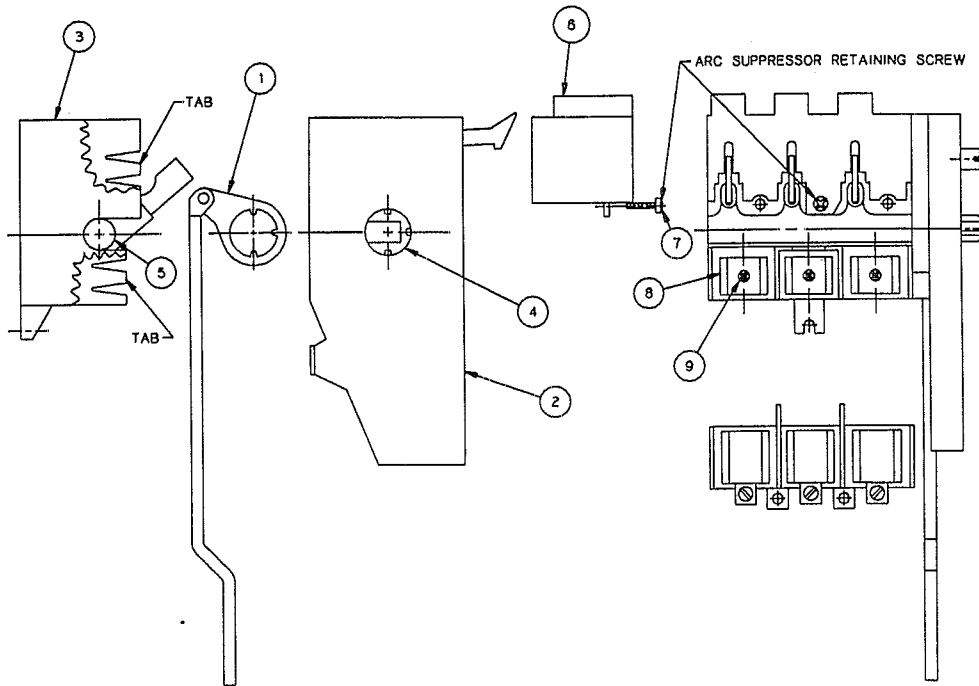
| APPLETON DISCONNECT SWITCH BAG GROUPS | "WSR" ASSEMBLY USED IN |
|--|------------------------------|
| WSRNT30F | WSR3352 |
| WSRNT30U | WSR33542 |
| WSRNT60F | WSR6352 |
| WSRNT60U | WSR63542 |
| WSRNT100F | WSR10352 |
| WSRNT100U | WSR103542 |

- Replace existing operating handle (11) with new one provided with disconnect switch group.
- Re-assemble housing lock-out (12) and the two handle lock-out screws (18) to housing (5) and tighten screws to 20 - 25 lb.-in. torque.

C. GROUND LUG

- Referring to "FIGURE C", loosen the ground lug screw and remove ground wire from the lug.
- Remove ground lug mounting screw from mounting plate.
- Replace ground lug and mounting screw assembly (19) with the appropriate one shown in "TABLE F".
- Torque ground lug mounting screw to 16-20 lb.-in. to fasten ground lug to mounting plate.
- Reconnect ground wire to lug and tighten lug screw to 30-40 lb.-in. torque.

EXPLODED VIEW OF SWITCH AND INTERLOCK ROD ASSEMBLY



B. DISCONNECT SWITCH AND HANDLE ASSEMBLY (CONTINUED):

To assemble new disconnect switch component parts -

- Replace disconnect switch and handle assembly with the same type as shown in "TABLE E".
- Referring to "FIGURE D" for the new disconnect switch assembly, assemble the switch interlock rod assembly (1) onto the switch mechanism assembly (2) in position shown. This is done by carefully aligning the grooves in the switch mechanism assembly (2) with the grooves in the line base assembly (3). Slide the mechanism assembly (2) down onto the line base assembly (3) until the tabs in the line base assembly lock into the corresponding holes in the mechanism assembly (2). Make sure switch mechanism (4) engages with switch pivot arm (5). Assemble the arc suppressor assembly (6) onto the line base assembly (3) with the arc suppressor retaining screw (7) provided.
- For 30 & 60 Ampere fusible switches only - Assemble fuse clips (8) to switch line base assembly (3) with fuse clip mounting screws (9).
- For 30 & 60 Ampere non-fusible switches only - Assemble switch lugs to switch line base assembly with lug mounting screws. Note - the non-fused switch assembly is not shown.
- For 100 Ampere fusible & non-fusible switches - Fuse clip or lug assembly to switch line base not required. Units come with pre-assembled lugs or fuse clips.

D. RECEPTACLE ASSEMBLY SCREW COVER INSTALLATION

- Referring to "FIGURE C", loosen the three flip cover assembly mounting screws which fasten the flip cover assembly to the receptacle housing (1). Remove the flip cover assembly by carefully lifting it off of the receptacle housing. Retain for future use, if desired.
- Remove one of the five receptacle housing mounting screws. Thread receptacle assembly screw cover (21) onto the receptacle housing (1) until screw cover gasket is firmly seated against the receptacle housing face. Replace previously removed receptacle housing screw into unit, making sure to secure free end of receptacle assembly screw cover (21) chain to housing by passing screw through the hole in the lug at the end of the chain.

E. RECEPTACLE ASSEMBLY

Electrical contacts eventually wear out, due to the amount of use the unit they are installed in experiences or due to environmental conditions. The receptacle assembly can, therefore, be replaced. The receptacle assemblies can be replaced with the same type and brand as factory installed. Doing so will not affect the U/L listing. Refer to "TABLE F" for replacement parts.

To replace the receptacle assembly -

- Referring to "FIGURE C", loosen the load side lug screws (9) of the disconnect switch (15) or fuse base (16), if applicable, and remove wires.
- Remove the four (4) receptacle assembly mounting screws (14) that fasten the assembly to the housing (5). Support the assembly so that it does not fall from unit.
- Remove the old receptacle assembly and replace it with the new unit. Replacing the unit can be accomplished by reversing the steps needed to remove it. Tighten the four (4) receptacle assembly mounting screws (14) to 19 - 25 lb.-in. to secure unit to housing.
- Place the appropriate wires into the correct lug locations and tighten lug screws to the appropriate value shown in "TABLE C".
- Test the unit for proper function by performing the following tasks:
With power not being applied to the assembly, close the cover (3) and throw the switch to the "ON" position make sure that no interference between new receptacle assembly and switch exists. If unit functions properly it can be returned to service. If unit does not function properly, recheck the mounting of the receptacle assembly to the housing. **Do not allow unit to be used until problem is corrected**

TABLE C

**TIGHTENING TORQUE -
DISCONNECT SWITCH LUG SCREWS**

| WIRE SIZE (AWG) | TORQUE (LB.-IN.) |
|--------------------|---------------------|
| 10-14 | 35 |
| 8 | 40 |
| 4-6 | 45 |
| 0-3 | 50 |

TABLE F**WRS SERIES REPLACEMENT PARTS**

| "WRS" RECEPTACLES REPLACEMENT PARTS | | | | | |
|-------------------------------------|-----------------------|--|-------------|-----------------------|---|
| REF. NUMBER | AMPACITY | DESCRIPTION | PART NUMBER | QUANTITY PER ASSEMBLY | Assemblies Used In |
| 1 | 30 | Electrical Interlock, 1 N.O., 1 N.C. | WS30AUX1 | 1 | WSR3352, WSR33542 |
| | 30 | Electrical Interlock, 2 N.O., 2 N.C. | WS30AUX2 | 1 | WSR3352, WSR33542 |
| | 60 | Electrical Interlock, 1 N.O., 1 N.C. | WS60AUX1 | 1 | WSR6352, WSR63542 |
| | 60 | Electrical Interlock, 2 N.O., 2 N.C. | WS60AUX2 | 1 | WSR6352, WSR63542 |
| | 100 | Electrical Interlock, 1 N.O., 1 N.C. | WS100AUX1 | 1 | WSR10352, WSR103542 |
| | 100 | Electrical Interlock, 2 N.O., 2 N.C. | WS100AUX2 | 1 | WSR10352, WSR103542 |
| 2 | 30 | 30 Amp fused switch bag grp | WSRNT30F | 1 | WSR3352 |
| | 30 | 30 Amp non-fused switch bag grp | WSRNT30U | 1 | WSR33542 |
| | 60 | 60 Amp fused switch bag grp | WSRNT60F | 1 | WSR6352 |
| | 60 | 60 Amp non-fused switch bag grp | WSRNT60U | 1 | WSR63542 |
| | 100 | 100 Amp fused switch bag grp | WSRNT100F | 1 | WSR10352 |
| | 100 | 100 Amp non-fused switch bag grp | WSRNT100U | 1 | WSR103542 |
| 3 | 30 & 60 100 (N.F.) | 30 & 60 Amp (fused & non-fused) 100 Amp (non-fused) int. rod assy | WSRROD | 1 | WSR3352, WSR33542 WSR6352, WSR63542 WSR103542 |
| | 100 (F.) | 100 Amp fused interlock rod assy | WSRROD100F | 1 | WSR10352 |
| 4 | 30 | Receptacle Assy - 30 Amp, 3w-4p | WRDK3034 | 1 | WSR3352, WSR33542 |
| | 60 | Receptacle Assy - 60 Amp, 3w-4p | WRDK6034 | 1 | WSR6352, WSR63542 |
| | 100 | Receptacle Assy - 100 Amp, 3w-4p | WRDK1034 | 1 | WSR10352, WSR103542 |
| 5 | 30, 60 & 100 | Ground lug & screw assy | 59350996000 | 1 | WSR3352, WSR33542 WSR6352, WSR63542 WSR10352, WSR103542 |

- Note - For electrical interlock installation procedure, see instructions provided with electrical interlock.

All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Appleton Electric Companies "Terms and Conditions of Sale", and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his intended use and assumes all risk and liability whatsoever in connection herewith.

When finished with installation, file and retain these instructions for future reference during inspection and maintenance.