

AutoFlagger® AF-76X Remote Control Flagging Device Manual



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AutoFlagger® AF-76X

Remote Control Flagging Device Manual



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THE AUTOFLAGGER AF-76X

The AutoFlagger® AF-76X was designed to conform, as closely as possible, to existing flag-person based flagging operations. The physical characteristics, including the octagonal STOP silhouette and diamond SLOW insignia, are common to all existing traffic control flagging situations. This helps the motorist acclimate to a new traffic control device quickly and easily.

- The physical size of the AutoFlagger® allows it to be seen and recognized earlier in the construction zone and aids motorists in differentiating it from other construction equipment. Its height makes the information easily recognized by motorists further away from the construction zone than is possible with conventional flag-persons.
- Its wide, stable trailer was designed to provide construction zone workers all possible means of safety. Individual warning horns located on each sign head can be triggered by remote to alert workers of impending danger. Flashing red and amber strobes, visible from the back of the signs, help workers within the work zone know at a glance what message is displayed. Flashing strobes also alert approaching motorists that a traffic control device is in use.
- AutoFlaggers® are ideally suited for use on two lane, two way, low volume roadways. Bridge repair, pavement repair, utility work, and roadside maintenance are typical uses of the devices. They can also be used during incident management, or used as a single unit in conjunction with a flagger to make an effective moving lane closure.
- The AutoFlagger® is shipped fully assembled and ready to operate.
- These units use two 12v deep cycle marine batteries in each trailer.
- Charging of the batteries is maintained by solar, 110v maintenance charger, and also via a live 12v from the tow vehicle plug.
- The hand-held controller uses a replaceable battery pack that should (depending on temperature) last one full workday, approximately eight hours.
- The main control panel on the sign unit has a built in charger for the hand-held battery pack.
- Two units can be coupled together and towed behind a single vehicle.
- The operating mast can be raised or lowered effortlessly with the built-in actuator.
- Manual override controls are located on the main control panel of each unit.

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TRAILER TOWING OVERVIEW

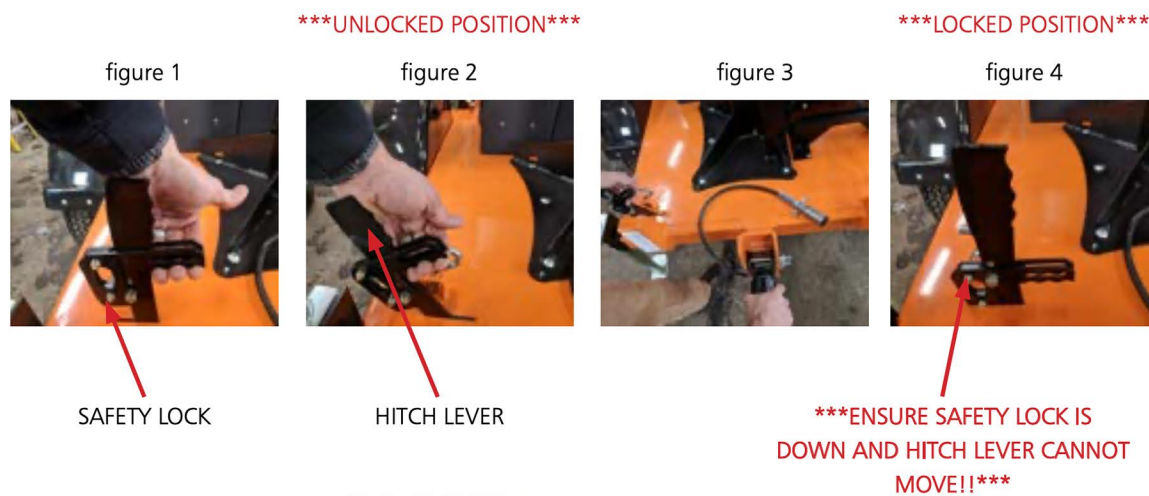
- Each trailer is the same. There is no designated front or rear trailer.
- Sign head must be in the lowest position
- Tool boxes must be shut and latched
- The trailer will pull at a slight arch to prevent whipping at high speeds
- It is recommended to not exceed 70 MPH, or 110KPH, while towing
- Jacks must be in the up position before towing
- Solar panel must be tightened securely
- Hitch must have positive lock and safety pin installed, safety chains connected, and trailer plug connected

CHECK, RE-CHECK, AND DOUBLE-CHECK ALL CONNECTIONS

COUPLING TRAILERS

- Hitch EXTENSION/RETRACTION

1. Lift safety lock (figure 1)
2. Pull hitch lever back to disengage lock (figure 2)
3. With Hitch Lever pulled back extend or retract hitch (figure 3)
4. Extend hitch until HITCH LEVER MOVES INTO LOCKED POSITION (SAFETY LOCK IS DOWN) AND HANDLE WILL NOT MOVE (figure 4)



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COUPLING TRAILERS

Each trailer is the same. There is no designated front or rear trailer.
METHOD #1

1. Extend the hitch on the front trailer and retract the hitch on the rear trailer.
2. Raise the rear jacks and lower the front jacks on each trailer
3. Position trailers in line, one in front of the other
4. Lift hitch of front trailer and push the trailer backwards into the rear trailer until the nylon bumpers collide
5. Once the ball of the front trailer is under the hitch of the rear trailer, lower the front trailer hitch
6. Using the jack, lower the rear trailer until the ball and hitch are coupled
7. Secure the hitch, and install the safety pin (figure 1)
8. Connect safety chains so that they are crossed (figure 2)
9. Connect trailer plug into receptacle (figure 3)
10. Raise all four jacks on the rear trailer.
11. Connect front trailer to vehicle, ensure hitch is coupled and locked, chains are crossed, trailer electrical plug is connected, and all eight jacks are raised.

*****CHECK, RE-CHECK, AND DOUBLE-CHECK ALL CONNECTIONS BEFORE TOWING*****



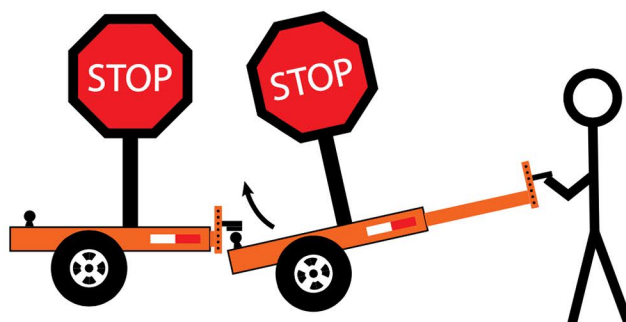
figure 1



figure 2



figure 3



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COUPLING TRAILERS

METHOD #2

1. Extend the hitch on the front trailer and retract the hitch on the rear trailer.
2. Raise the rear jacks and lower the front jacks on each trailer
3. Position trailers in line, one in front of the other
4. With an assistant, lift front of rear trailer and pull into position with jack handle
5. Lower the hitch of the rear trailer over the ball of the front trailer
6. Using the jack, lower the rear trailer until ball and hitch are coupled
7. Secure the hitch, and install the safety pin (figure 1)
8. Connect safety chains so that they are crossed (figure 2)
9. Connect trailer plug into receptacle (figure 3)
10. Raise all four jacks on the rear trailer.
11. Connect front trailer to vehicle, ensure hitch is coupled and locked, chains are crossed, trailer electrical plug is connected, and all eight jacks are raised.

*****CHECK, RE-CHECK, AND DOUBLE-CHECK ALL CONNECTIONS BEFORE TOWING*****



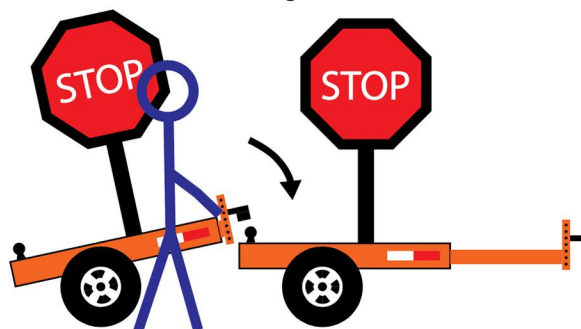
figure 1



figure 2



figure 3



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CONTROLLER

GENERAL

- The heart of the setup and control of the AutoFlagger® is the controller
- The controller can operate in three different modes
 1. PAIRED - Safety defaults are on and both signs CANNOT display slow at the same time, most operations will use this mode
 2. INDEPENDENT - Safety defaults are off, both signs can display SLOW at the same time. Use this function only when necessary and NEVER USE THIS AS DEFAULT OPERATING PROCEDURE
 3. SINGLE - A single sign used as a standalone unit. If two controllers are used both units can be at different job sites *****NOTE***** make sure the controller is only bound to one sign while in SINGLE Mode or undesired operation may occur if the other sign in is within range
- The range of the controller can go beyond line of sight. It is imperative that the operator can see the traffic control operation for safety. Two operators with radio communication must be used if constant visibility of units cannot be maintained
- The controller is powered by a rechargeable battery pack located on the back. This battery pack can be charged at the main control panel on the sign unit

BATTERY REPLACEMENT

- Remove controller rear cover
- Remove yellow battery pack (figure 1)
- Exchange battery pack with charged battery at main control panel (figure 2)
- Turn on power to controller and resume operations
- *****Note***** The controller will keep the previous setting of Paired or Single but NOT Independent. If both signs are set to SLOW and the controller is powered back on, they will safety override to STOP position and INDEPENDENT will have to be re-selected



figure 1



figure 2

BATTERY INDICATION

- The main control panel will display the charge state of the battery pack
- A flashing green light indicates that the charger is searching for a battery pack
- A solid green light indicates that the battery pack is charging
- No indicator light indicates that the battery pack is charged

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CONTROLLER

STARTUP

- Press the PWR (power) on button to start the controller
- Select the back light by following the on-screen prompt.

CONTROLLER/SIGN BINDING GENERAL INFORMATION

- Binding is the establishment of a link between the sign unit and the controller
- Each sign unit pair is bound at the factory prior to delivery*
- For multiple units in a fleet it is recommended that the sign units and controllers be labeled for identification
- The controller will pick up the first sign unit that it detects, therefore only one sign unit may be powered on when binding

BINDING PROCEDURE

- With only one sign unit powered on press MODE, then use the arrow keys to navigate to BIND/UNBIND SIGNS
BIND SIGN ENTER
- Horn will sound when sign is bound to controller. This may take up to 30 seconds
- Turn off power to the sign unit on main control panel
- Proceed to next sign unit and turn power on
- Repeat procedure to bind the second sign unit

UNBIND

- Sign units do not need to be on for the unbind procedure. All bind data is stored in the controller
- Press MODE

BIND/UNBIND SIGNS UNBIND ALL SIGNS ENTER

*If this replacement sign unit binding cannot be accomplished at the factory and must be completed by the user

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CONTROLLER

CONTROLLER MENU SYSTEM

- Enter controller MENU (figure 1)

- Press MODE

- There are five options (figure 2)

1. SWAP SIGN SIDES

This is used to swap the sign sides on the controller. This is useful when an operator has moved to the other side of the road and the display on the controller does not correspond to the physical location of the sign units

2. SET SIGN MODE

This is used to select the different modes of the sign such as PAIRED, INDEPENDENT, and SINGLE

3. BIND/UNBIND SIGNS

This is used to establish communications between the controller and the sign unit. It is also used to break the communication link (UNBIND)

4. VIEW ID INFO

This will display the connection address of the sign unit to the controller

5. FLASH STROBES

Used for testing the strobes and orienting the sign units

- Proceed to next sign unit and turn power on

- Repeat procedure to bind the second sign unit

UNBIND

- Sign units do not need to be on for the unbind procedure. All bind data is stored in the controller

- Press MODE

BIND/UNBIND SIGNS UNBIND ALL SIGNS ENTER

*If this replacement sign unit binding cannot be accomplished at the factory and must be completed by the user



figure 1



figure 2

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WORK ZONE SET UP

- The operators must familiarize themselves with the product before use on an operational roadway. Do this in an area free of oncoming traffic, such as a parking lot, or equipment yard. Establish the work zone in accordance with the MUTCD and local guidance.
 - Proper warning signs shall be placed so that all of the signs and other items controlling traffic movement are readily visible to the driver of the initial approaching vehicle with advance warning signs alerting other approaching vehicles to be prepared to stop.
 - Post proper warning signs that a flagging operation is taking place. Set up safety cones to direct traffic into desired lane.
 - Ensure the operator has an unobstructed view of the sign unit(s) and approaching traffic in both directions.
 - If the operation is beyond line of sight, use one operator per sign unit, and establish radio communications
 - If used for haul road crossing, post signs to alert motorist of oncoming flagging operations
 - Ensure all workers understand that there is an AFAD present on the job-site, that he/she knows that there is a warning horn, and to take it seriously
- BIND/UNBIND SIGNS UNBIND ALL SIGNS ENTER

*If this replacement sign unit binding cannot be accomplished at the factory and must be completed by the user

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WORK ZONE SETUP

- Place sign units at desired location
 - Set up proper cones and signs per work zone regulations
 - Retract hitch in (see CONNECTING TRAILERS)
 - Extend outriggers
 - Extend the jacks. Make sure that there is positive contact between the jack pad and ground (figure 1) ***This will limit movement in the event of a collision***
 - Raise Mast (see RAISING THE MASTS)
 - Power on sign units (see INITIATING POWER), gate arm motor will initiate momentarily
 - Power on controller and verify communication between controller and sign units (see BASIC OPERATION)
 - Extend gate arm to desired length, this may be easier when sign is in SLOW position (figure 2)
 - Repeat with second sign unit if used
- A red indication light means there is a battery pack fault



figure 1



figure 2

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RAISING THE MASTS

- AF-76X - At the main control panel move the toggle switch to the UP position until the mast reaches desired height. At maximum height the actuator clutch will engage indicated by a clicking sound. (figure 1)



figure 1

POWER ON

- At the main control panel switch the toggle to the ON position (figure 2)
- Press the PWR (power) button on the controller (figure 3)
- Select back light operation
- Select sign mode (default is PAIRED)
- Confirm both sign positions are displayed on controller
- Operate signs (see OPERATION)

figure 2



figure 2



figure 3

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LOWERING THE MASTS

LOWERING THE MAST

- AF-76X - At the main control panel move the toggle switch to the DOWN position until the mast is fully lowered. At the fully lowered position the actuator clutch will engage indicated by a clicking sound.(figure 1)



figure 1

POWER OFF

- Collapse telescoping gate arm
- If signs are in paired mode both gate arms will not go up at the same time. EITHER
 1. Power off controller and change signs to slow at main control panel (see MANUAL OPERATION)
 2. Or with controller set sign mode to INDEPENDENT and move signs to SLOW
- Press the power (PWR) button on the controller (figure 2), follow screen prompts to power down
- Stow the controller in a secure location
- On the main control panel switch the toggle to the OFF position (figure 3)
- Prepare the sign units for transport



figure 2



figure 3

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CHARGING SYSTEMS

· *****NOTE***** there is a slight power draw of the sign units even when powered off. If sign units are stored it is recommended to use the maintenance charger

SOLAR

· Each sign unit is equipped with a mounted solar panel that charges the batteries via a solar controller (figure 1)

· In most cases this is enough for continuous operation, reasons for inadequate charge may be
Blocked light: Heavy forest area, traffic tunnel, building etc... Blocked panel: Snow, dust, or debris covered panel

Low sunlight: Winter operation with limited hours of daylight

MAINTENANCE CHARGER

· The maintenance charger is located inside the tool box. The 110V plug is located on the side of the tool box (figure 2)

· This can be used for supplemental charging if the solar panel is not producing enough power

· Connecting the maintenance charger is recommended during long periods of storage

VEHICLE TRAILER PLUG

· If your vehicle has a live 12V at the trailer plug the sign will charge when plugged into your vehicle

· This is the BLUE connection at the plug (figure 3)

· This may be used at the work zone *****This may drain your vehicle battery*****



figure 1



figure 2



figure 3

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BASIC OPERATION

- Power on sign units (see section INITIATING POWER)
- After desired sign units and controller are powered on the current sign position will be displayed (figure 1)



figure 1

- To set the signs to STOP, press the STOP button
- To set desired sign to SLOW, press the desired SLOW button
- You may swap the STOP/SLOW images displayed to match the physical position using SWAP SIGN SIDES in mode selection (see SWAP SIGN SIDES section)

MANUAL OPERATION

- In the event that the controller is not used there is a manual override on the main control panel
- *****NOTE***** when using these overrides monitor oncoming traffic, operate the panel from the side, do not stand in the lane of traffic
- To set the sign to STOP press the STOP button (figure 2)
- To set the sign to SLOW press the SLOW button (figure 3)



figure 2



figure 3

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GATE ARM

- The gate arm incorporates current feedback and a breakaway design
- The current feedback will stop the gate-arm if it is obstructed
- In this event the operator will need to evaluate the situation and determine the appropriate action
- To raise the gate arm, set the sign to SLOW. The sign will transition to slow and the gate arm will raise
- If the gate-arm is struck and the break-away is activated, the warning horn will sound momentarily
- In high wind situations the gate arm may get a break away indication, the tension of the breakaway can be adjusted as seen in (figure 1)

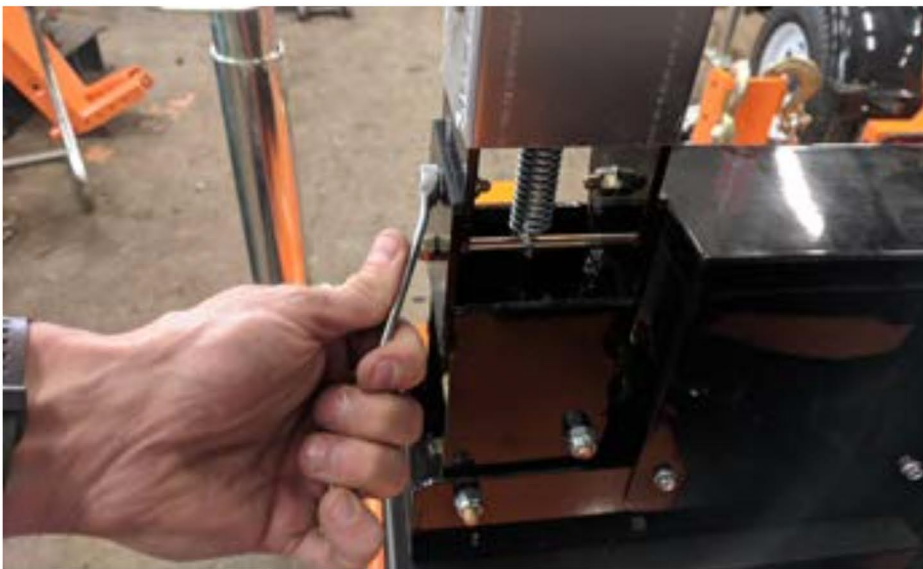


figure 1

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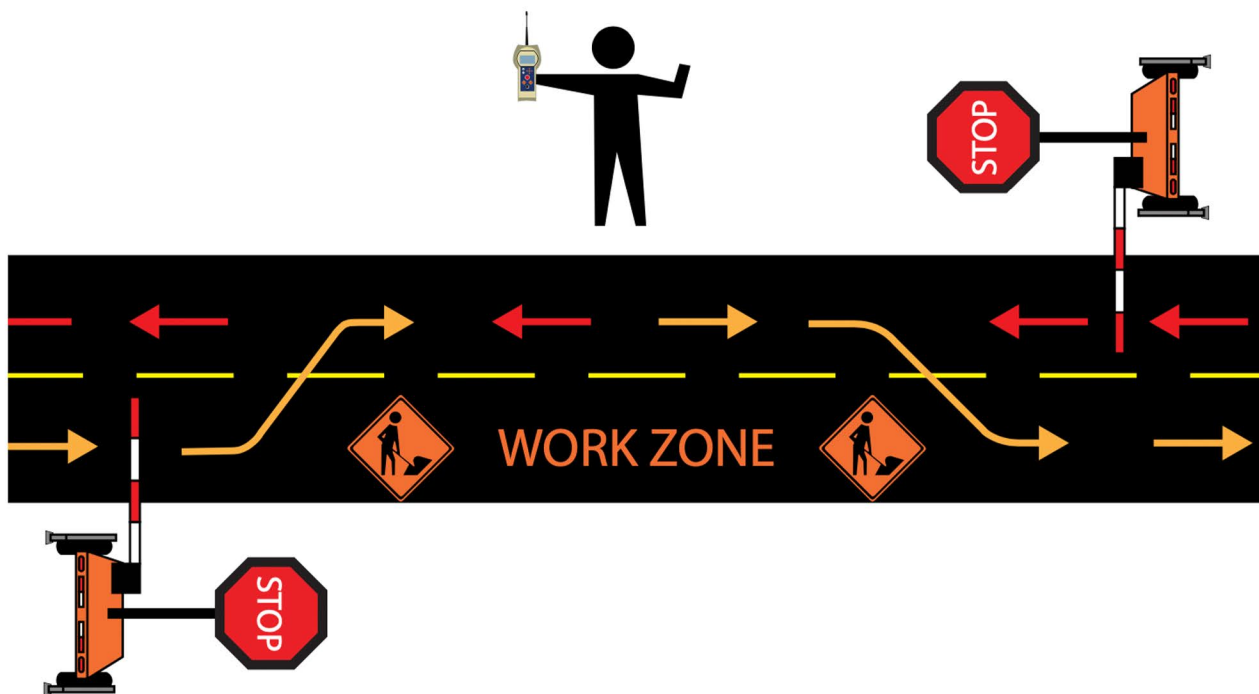


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PAIRED OPERATION

This is a general guideline, use sound judgment, local, state, and company procedures

- Set controller to PAIRED mode
- This mode will prevent both sign units from going to SLOW position



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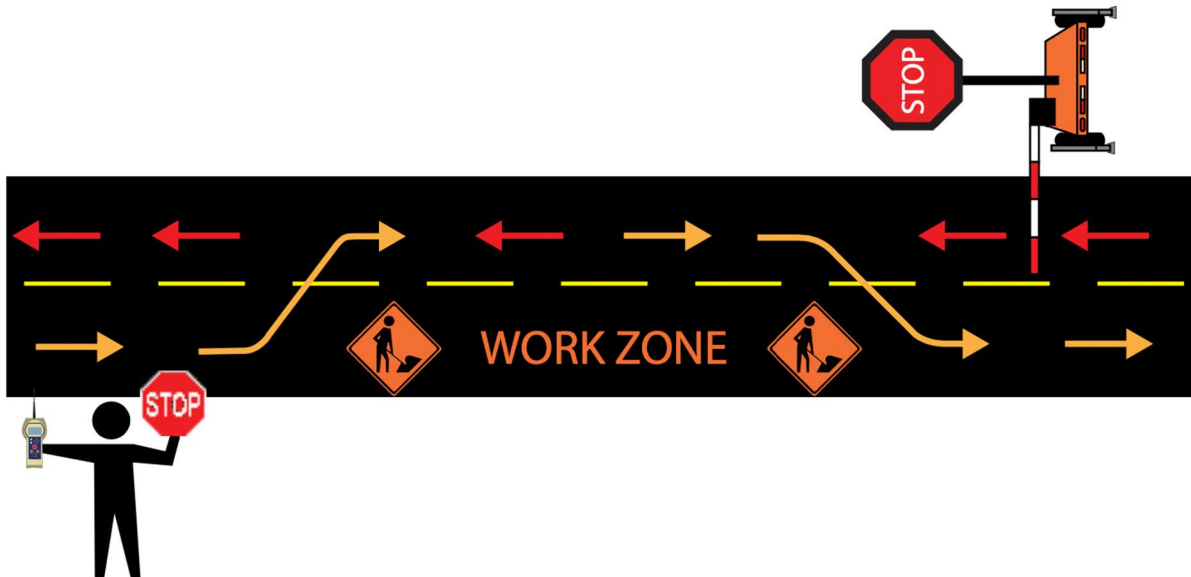
SINGLE OPERATION

This is a general guideline, use sound judgment, local, state, and company procedures

Set controller to SINGLE mode

This mode will allow the operator to control only one sign unit

The operator must manually control traffic at the other end of the work zone



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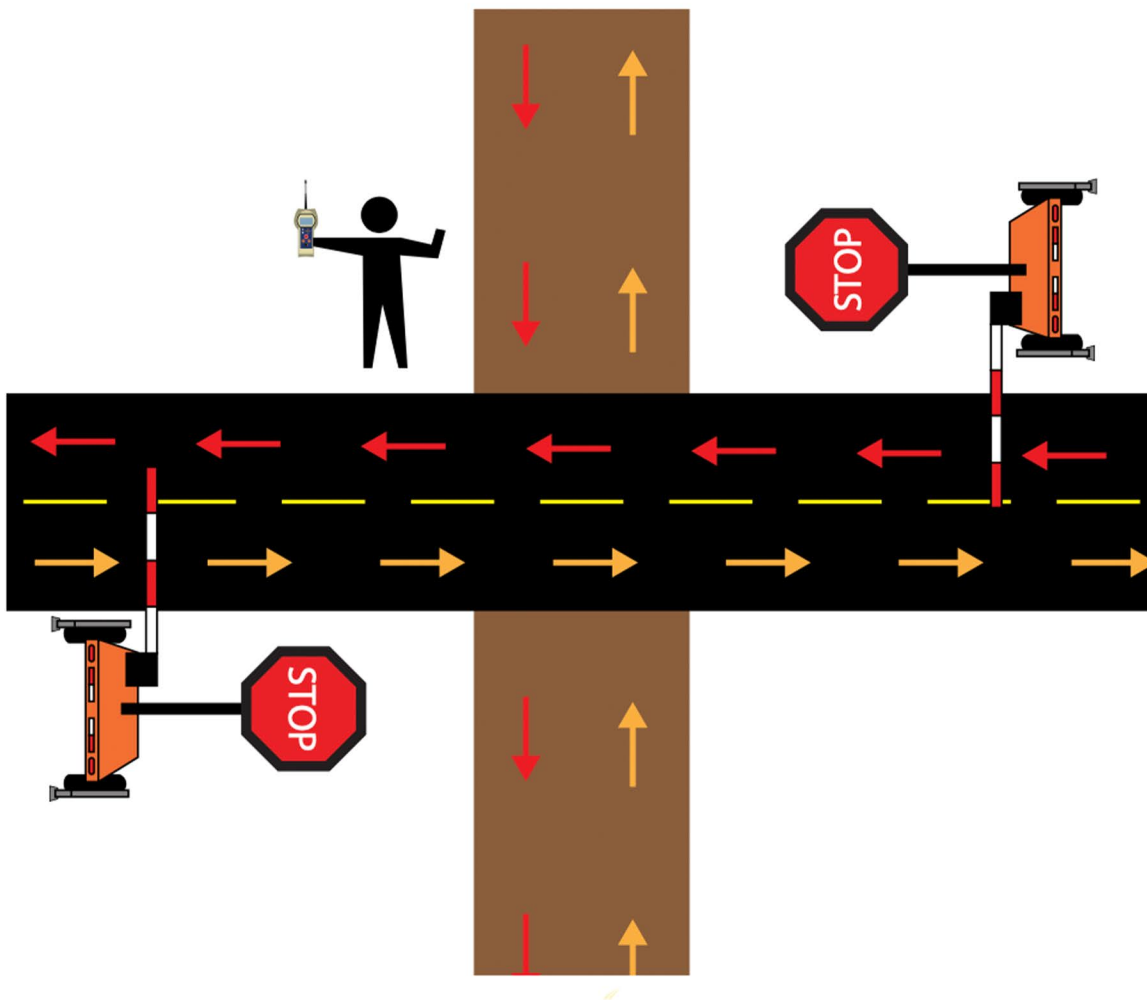


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INDEPENDENT OPERATION

This is a general guideline, use sound judgment, local, state, and company procedures

- Set the controller mode to INDEPENDENT mode
- Both sign units can now go to AMBER (af-54) or SLOW (AF-76X) position
- ***NOTE*** if the battery pack in the controller is replaced, the controller will revert to PAIRED operation and both signs will automatically go to STOP, this is a safety default, re-select independent operation on controller



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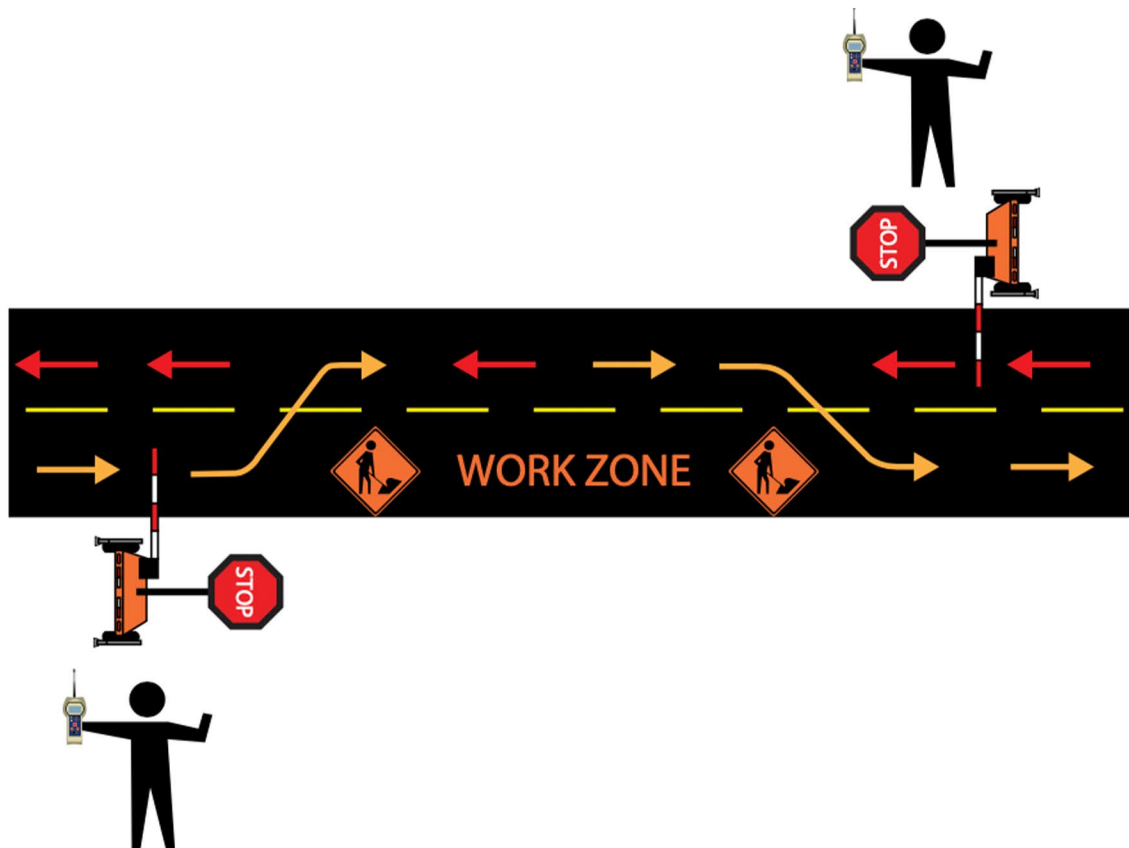


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LONG DISTANCE OPERATION

This is a general guideline, use sound judgment, local, state, and company procedures

- This operation should be used if the distance between sign units is beyond line of sight or the operator does not have a clear view of traffic
- A controller can only be bound to one sign unit in SINGLE mode
- To do this, press MODE BIND/UNBIND SIGNS UNBIND ALL SIGNS ENTER (see section BINDING PROCEDURE)
- Turn on only one sign unit and bind that specific sign unit to one controller and power down sign
- Turn on the other sign unit to be used and follow the same procedures with the other controller
- Failure to properly unbind and bind controllers to corresponding sign units may result in undesired operation
- Verify functionality before using with traffic



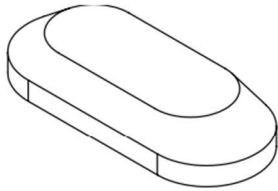
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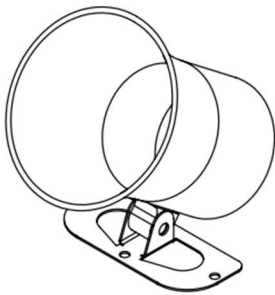
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PARTS

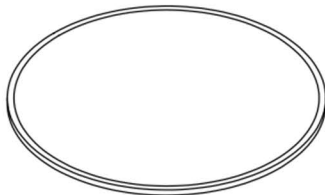
COMMON ELECTRICAL HEAD COMPONENTS



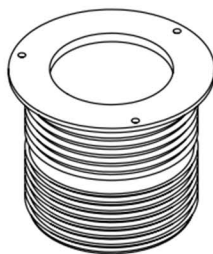
PART NUMBER	DESCRIPTION	QTY.
E-STRBRD	RED STROBE LIGHT	1



PART NUMBER	DESCRIPTION	QTY.
E-AFHRN125DB	125Db. WARNING HORN	1



PART NUMBER	DESCRIPTION	QTY.
E-AFSIGRED	12" RED SIGNAL LIGHT	1



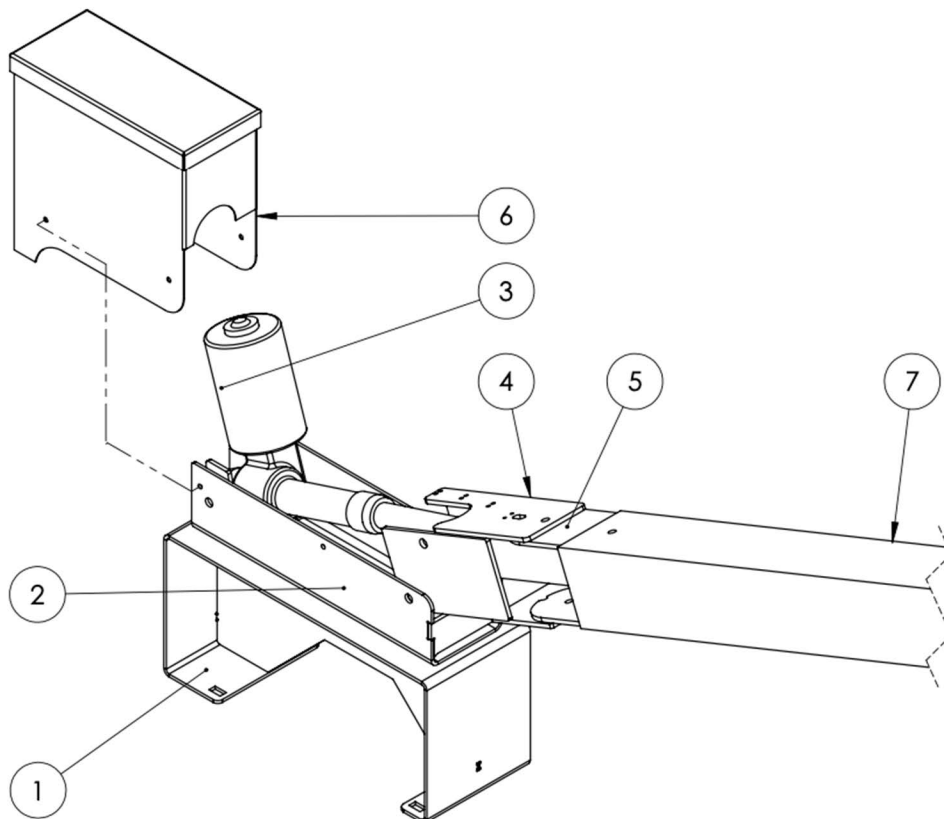
PART NUMBER	DESCRIPTION	QTY.
E-YS1	YELLOW STROBE LIGHT	2

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10700 GATE ARM ASSEMBLY



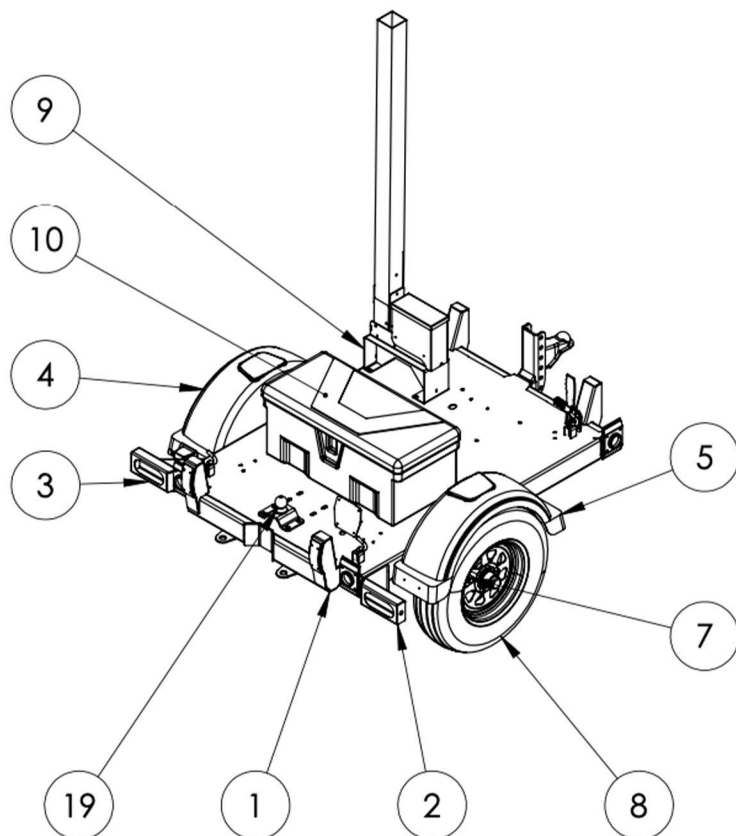
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	10710 ASSEMBLY	PEDASTAL ASSEMBLY	1
2	10720 ASSEMBLY	GATE ARM ACTUATOR ASSEMBLY	1
3	LINEAR ACTUATOR	GATE ARM LINEAR ACTUATOR	1
4	10730	GATE ARM PIVOT BRACKET	1
5	10740	BREAK-AWAY CAM ARM	1
6	10750 ASSEMBLY	GATE ARM COVER ASSEMBLY	1
7	10760	ALUMINUM GATE ARM	1

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11300 FULL TRAILER



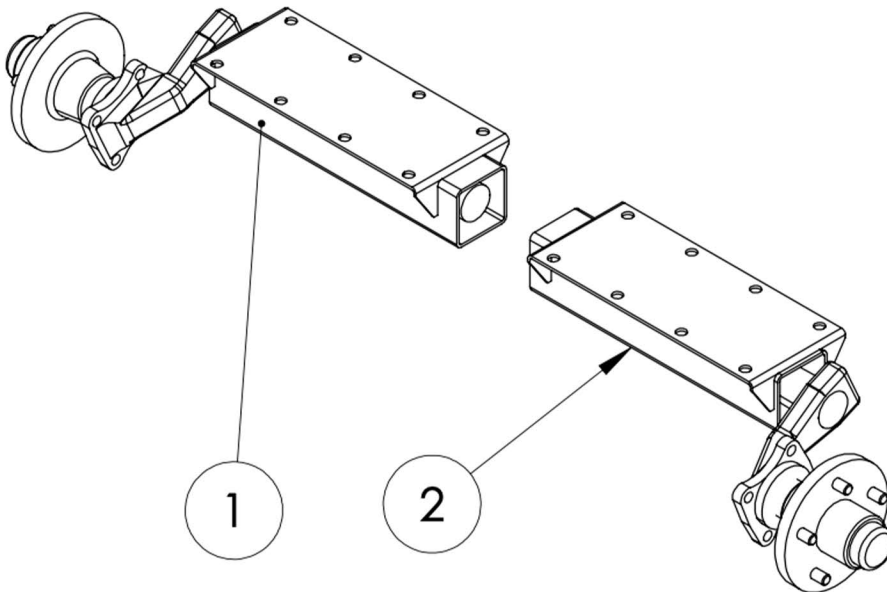
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11300 ASSEMBLY	FULL TRAILER DECK	1
2	11370_PS	PASSENGER SIDE TAIL LIGHT	1
3	11370_DS	DRIVER SIDE TAIL LIGHT	1
4	11410_DS	DRIVER SIDE FENDER ASSEMBLY	1
5	11410_PS	PASSENGER SIDE FENDER ASSEMBLY	1
6	HalfAxle_3.5K_L	3500lb. DRIVER SIDE AXLE	1
7	HalfAxle_3.5K_R	3500lb. PASSENGER SIDE AXLE	1
8	Tire_14_INCH	14" TIRE/WHEEL	2
9	10700 ASSEMBLY	GATE ARM ASSEMBLY	1
10	TB1	TOOL BOX	1
11	11335	BALL HITCH	1

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AXLES



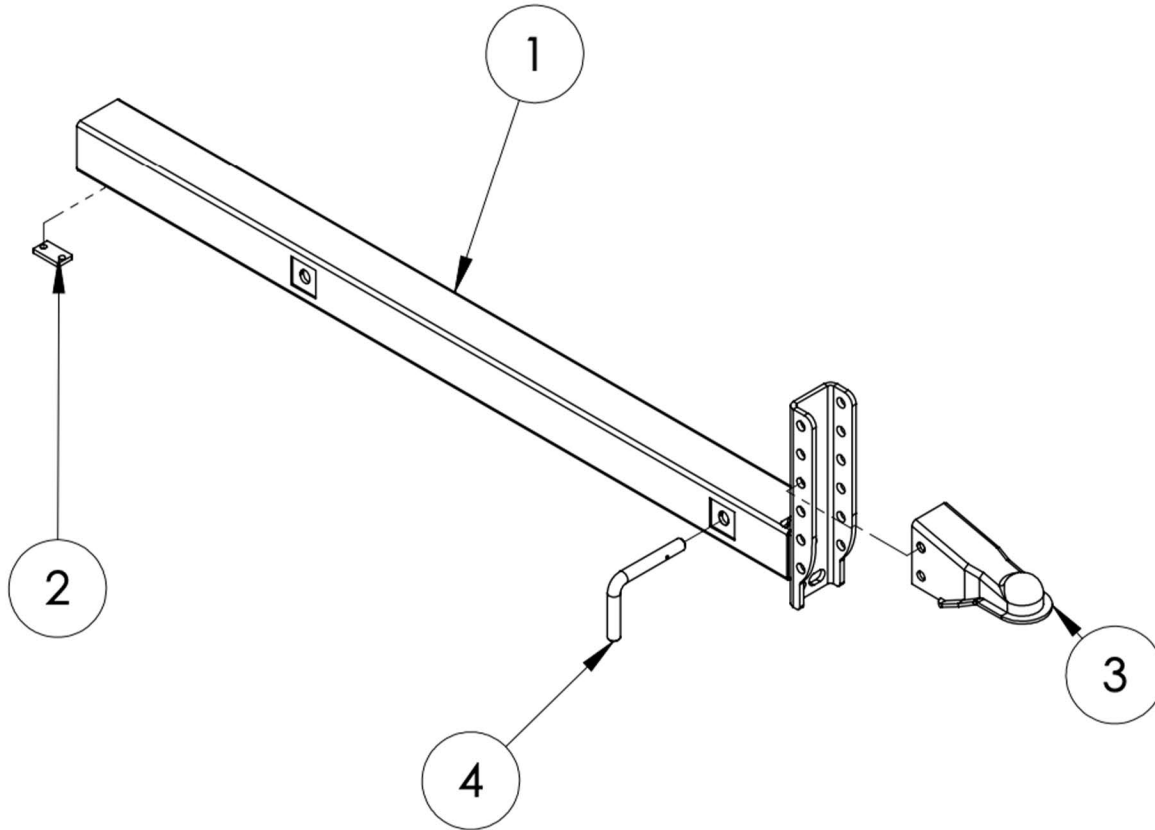
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	HalfAxle_3.5K_L	3500lb. DRIVER SIDE AXLE	1
2	HalfAxle_3.5K_R	3500lb. PASSENGER SIDE AXLE	1

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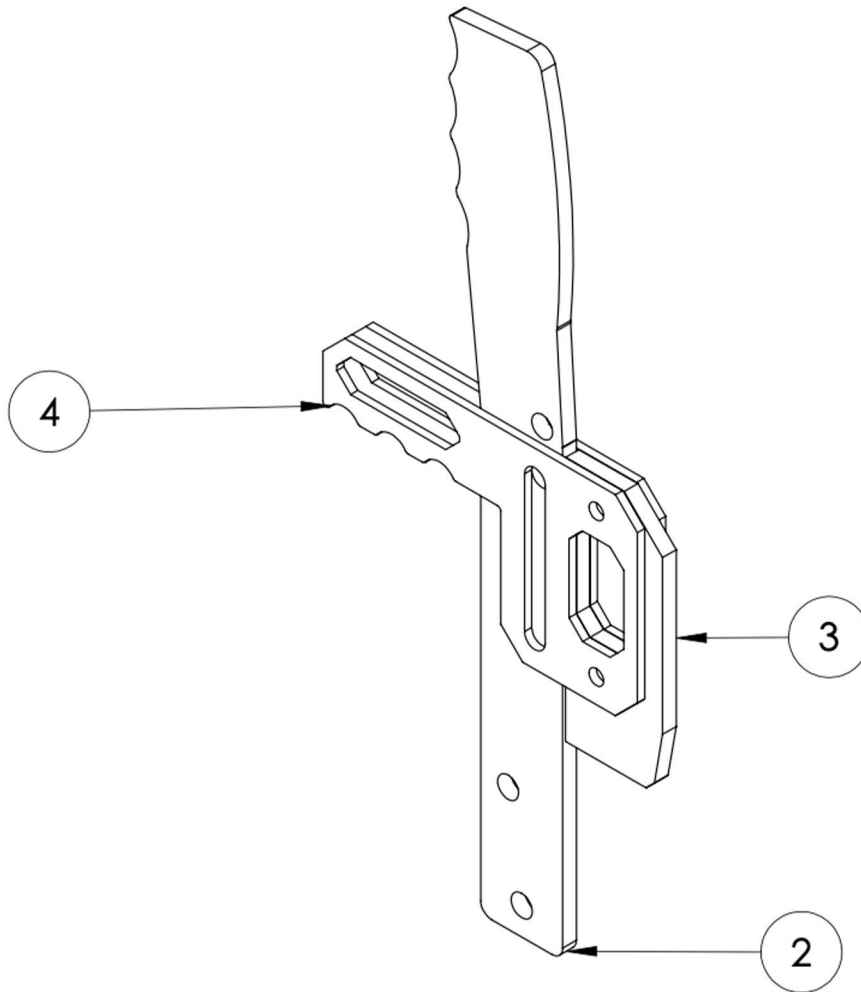
11330 HITCH POLE ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11330 ASSEMBLY	HITCH POLE ASSEMBLY	1
2	11337	HITCH LIMIT PLATE	1
3	8K HITCH		1
4	HITCH PIN		1



11340 HITCH LATCH ASSEMBLY



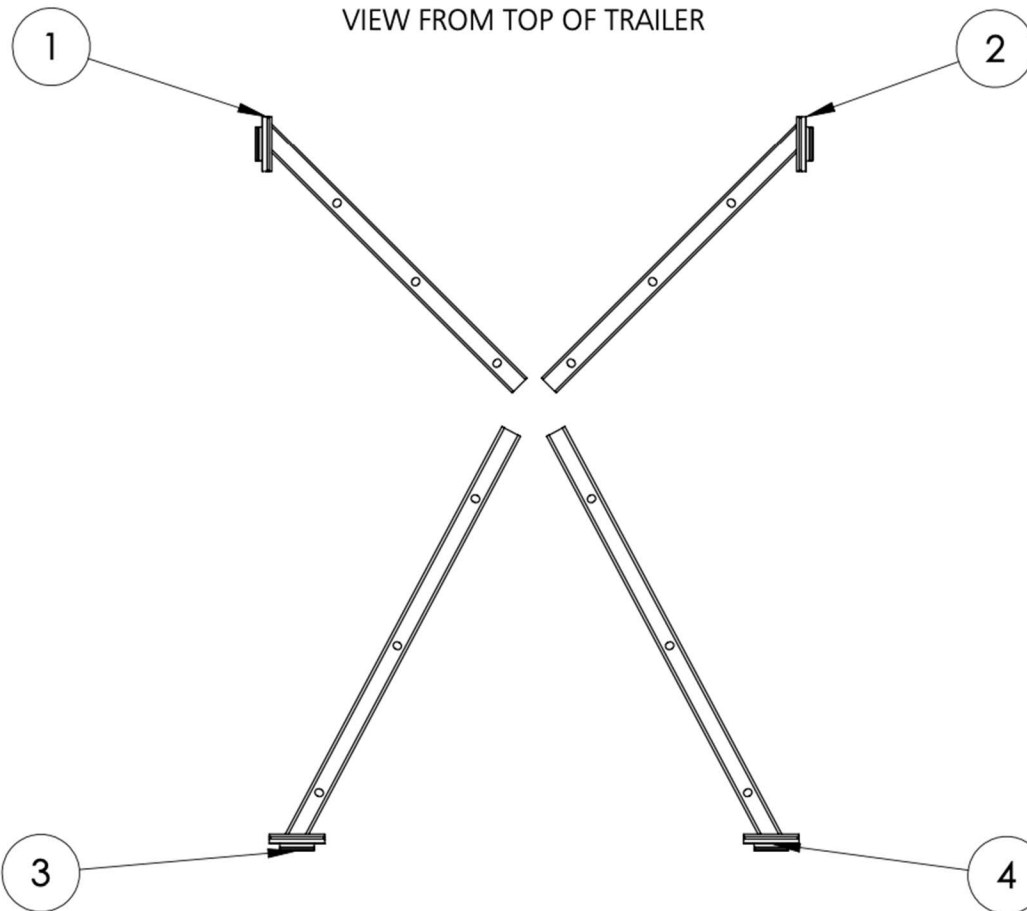
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11340	HITCH LATCH ASSEMBLY	
2	11341	HITCH PIN PULL HANDLE	1
3	11342	HITCH LEVER WEDGE	1
4	11343	HITCH WEDGE CARRIER	2

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11360 OUTRIGGER ASSEMBLIES



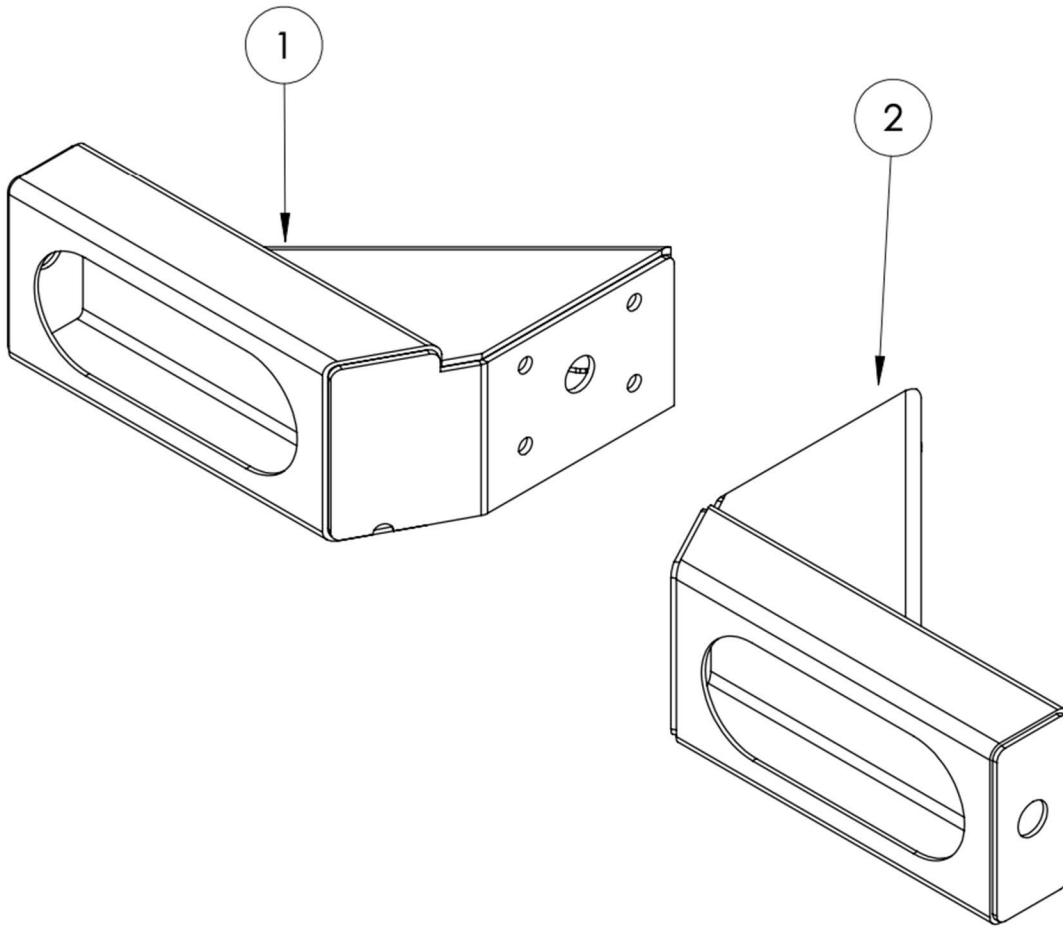
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11360_DF	DRIVER SIDE FRONT OUTRIGGER	1
2	11360_PF	PASSENGER SIDE FRONT OUTRIGGER	1
3	11360_PR	PASSENGER SIDE REAR OUTRIGGER	1
4	11360_DR	DRIVER SIDE REAR OUTRIGGER	1

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11370 TAIL LIGHT ASSEMBLIES



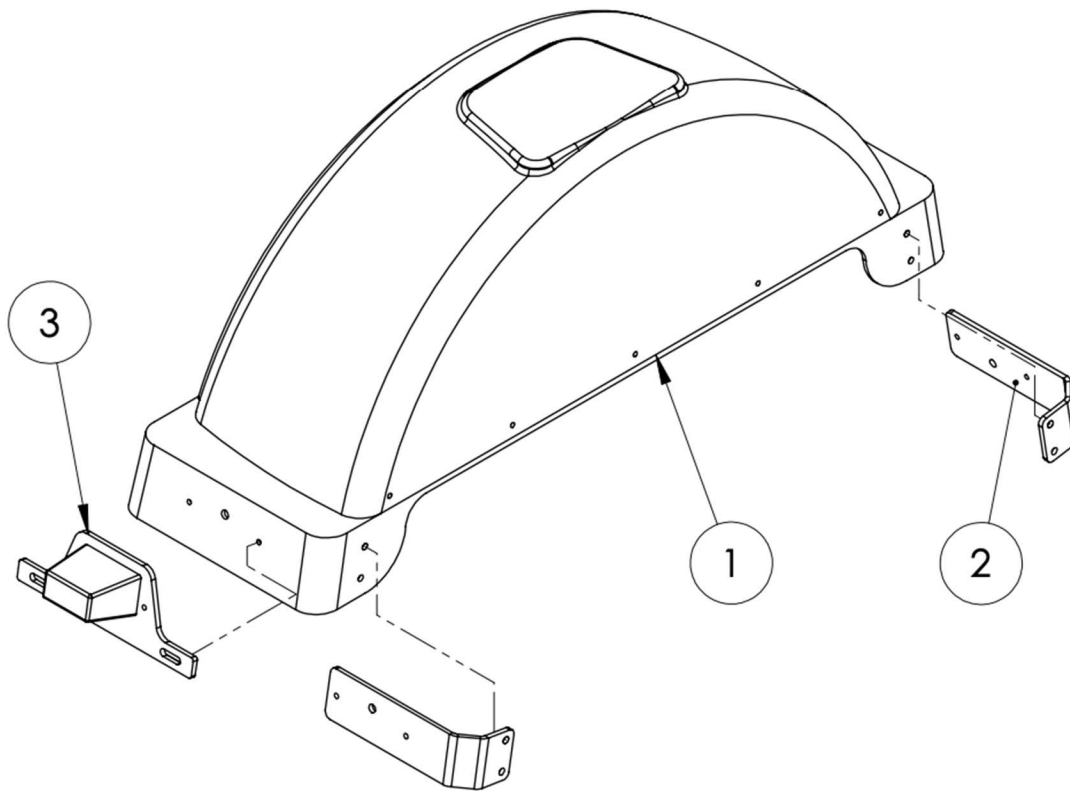
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	11370_DS	DRIVER SIDE TAIL LIGHT	1
2	11370_PS	PASSENGER SIDE TAIL LIGHT	1

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FENDER COMPONENTS



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	Fender_Fulton	POLY FENDER	1
2	11411	FENDER SUPPORT ARM	2
3	11415	LICENSCE PLATE LIGHT	1