Technology Sealed Wiper Motor

- IP66 rated
- 2 Speed
- Drives arms and blades up to 23”/600mm
- CE certified
- Powder coated case with heat sinks.
- Pre-set sweep angles of 40, 50, 60, 70, 80, 90, 100 or 110 degrees are available or can be adjusted to desired angle in the field.

SHAFT CONSTRUCTION: Stainless steel w/brass housing

SHAFT LENGTH: 3.5”

SHAFT TYPE: ½” drum

LOW SPEED: 40 sweeps/minute

HIGH SPEED: 60 sweeps/minute

MOTOR VOLTAGE: 24 v

GROUNDING: Isolated, white wire

FUSING: 7A for 24v

WIRE INSULATION: Red=Park, Green=Low Speed, White=Ground, Blue=High Speed

WIRING: 16AWG, 12” leads

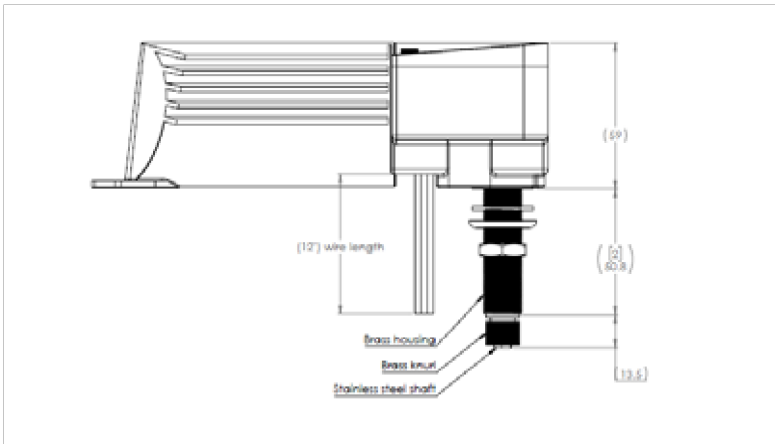
PARK CIRCUITRY: Coast to park

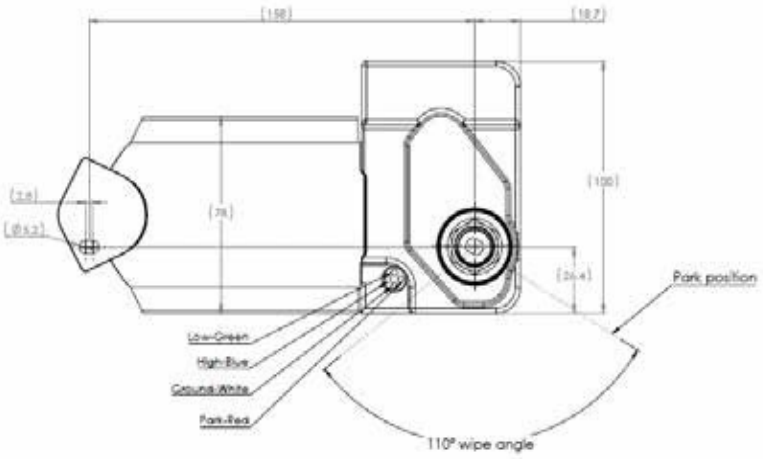
PARK POSITIONS: Adjustable, left or right

CASE: Powder coated, black w/heat sinks

WEIGHT: 1.4Kg / 3.1lb

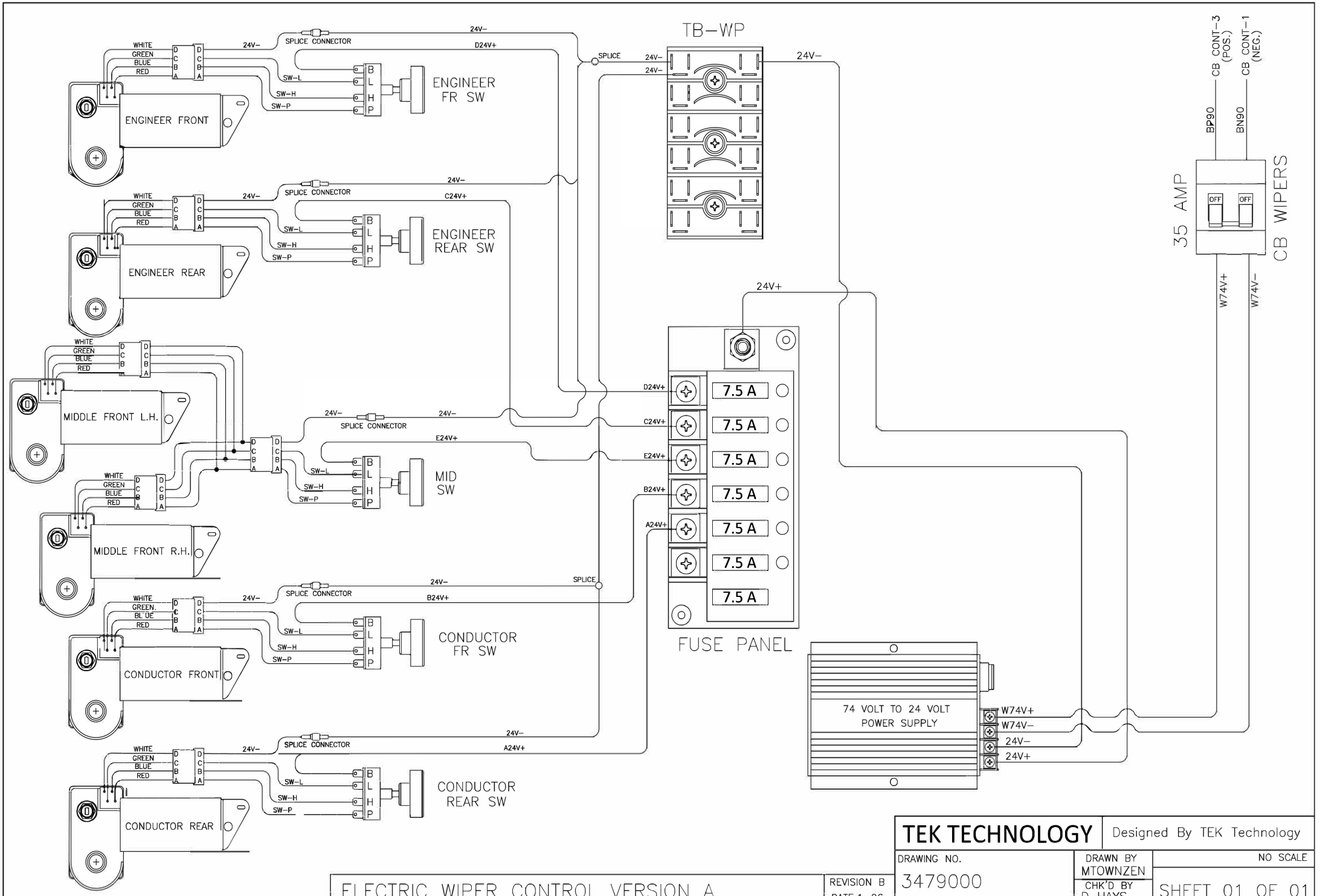
PACKAGING: Individually boxed





www.TEKtechnology.net

TEK Technology 1 (315) 486 - 8265
1562 Frontage Rd O’Fallon IL 62269



ELECTRIC WIPER CONTROL VERSION A

REVISION B
DATE:1–26

TEK TECHNOLOGY	Designed By TEK Technology	
DRAWING NO. 3479000	DRAWN BY MTOWNZEN	NO SCALE
	CHK'D BY D HAYS	SHEET 01 OF 01

This defines the procedure to install TEK Technology Wiper Motor Kits. Please follow all safety protocols your railroad requires.

The TEK motors can be set to sweep at angles of 40, 50, 60, 70, 80, 90, 100, or 110 degrees. They come preset for known working applications, please see marked boxes for correct placement. The TEK motor can be set to park the wiper arms and blades on the left side of the windshield, or on the right side of the windshield. Please see the technical brief related to Park Position for definitions and details.

1. Remove all Pneumatic wiper blades, arms motors and lines.
2. Cap air lines in sub-base floor to prevent air leaks.
3. Remove and install power supply mount in electrical cabinet with hardware provided, power supply terminal board and fuse panel come pre mounted for ease of installation.
4. Install breaker mount and route wires to control breaker BP90 connects to the CB Positive, BN90 connects to the CB Negative as indicated on the print provided.
5. Route the 74v+ and 74v- wires to the power supply and terminate wires on 74v+ and 74v- terminal screws.
6. Remove the light panel on both sides of the locomotive above the engineer and conductor seats. Remove exiting lights (label wires if needed for reinstallation). Remove wiper valves and knobs, flip panel over 180 degrees, use wiper name plate to mark new holes if needed, drill holes the same size as the nameplate. Clean up panels and paint if need. Install light back into panel in the flipped over position.
7. Route the Engineer harness from the engineer light panel opening to the fuse panel and terminal board located next to the power supply and terminate wires per print 24v+ to fuse panel and 24v- to TB. Route the front Engineer harness to the front Engineer window motor location, Route the rear Engineer harness to the rear motor location, leave plenty of slack so wire can open and close with door properly. Una bits and grommets have been provided.
8. Route the front center Wye cable from the front number boards and motor locations to the engineer light panel opening. Una bits and grommets have been provided.
9. Route the Conductor harness from the conductor light panel opening to the fuse panel and terminal board located next to the power supply and terminate wires per print 24v+ to fuse panel and 24v- to TB. Route the rear conductor harness to the rear Conductor motor location. Route the front Conductor harness to the front motor location, leave plenty of slack so wire can open and close with door properly. Una bits and grommets have been provided.
10. Take the 11/32 drill bit provided and drill exiting wiper shaft holes in all six locations. Clean up metal shavings.
11. Remove nut and washer from one motor shaft at a time and install motors based on the packaging for specific locations, Center x 2, Eng front, Eng rear, Cond front, Cond rear. Motors are preset for park and degree sweep angle from the factory to help expedite installation. Any motor can work in any location once set for the proper park and degree sweep angle. Spacers may be required for motor foot mount; hardware has been included.
12. Wire switch connections on the engineer and conductor side per print provided. 24v+ to B, SW-L to L, SW-H to H, SW-p to P, 24v- splice connector to splice connector. You will do this for all five wiper switches, use provided labels to mark Eng front, Eng Rear, Center, Cond front and Cond rear.
13. Test wiper motors and by turning on breakers and checking each motor individually, then on low, then on high all together. Take note of the direction the shaft is turning and the park location. Once tested and verified you can now zip tie wires back and install switches through light panel and new name plates and hook light back up and reinstall panel on both sides.
14. Place the wiper arm base over the shaft and secure the base with hardware provided and the nut and washer you removed from the shaft previously. With the motor in park position place the wiper blade 1/2 " from the window on the right-hand side and secure the wiper arm to the drum shaft, duplicate for the remaining three windows.
15. Place the center wiper arm on the drum shaft with the blade on the left-hand side with the tip of the blade 1/2" from the window gasket and secure, duplicate for the other side.

How to install TEK Technology Wiper Motor Kit

This pictorial shows the procedure to install TEK Technology Wiper Motor Kits.

Please follow all safety rules, requirements and protocols your railroad requires. Never install with live electrical circuits. Please follow all AAR and FRA guidelines.

Please contact Ted Kerrn at ted@TEKtechnology.net with any questions or concerns regarding your kit or installation.

Not all the items included in the kit will be utilized for your installation, we have provided the most well-known parts list for easier installation and to help prevent any unforeseen barriers you may encounter during installation.

1)

2)

Install power supply mount and breaker.

- Power Supply Mount
- Four Screws
- Power Supply
- Terminal Board
- Fuse Panel
- Breaker mount
- Breaker
- Breaker wiring to CB
- Breaker wiring to power supply

Step 3 - 4 - 5

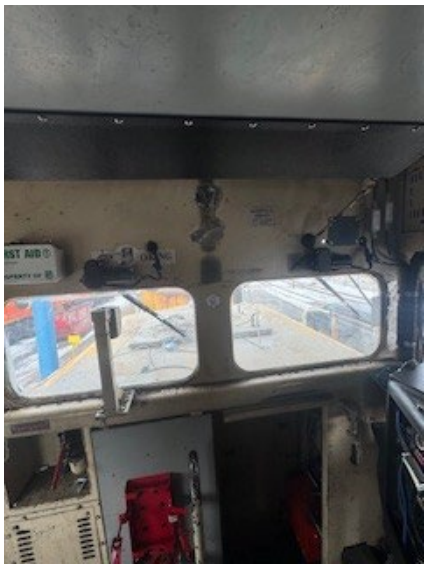
3)

Remove Engineer light panel and route pre-assembled Harness's.

- Route Pre-labeled Harness's
- Grommets
- Una Bits

Steps 6-7

4)



Run Wye cable from Engineer side to number board location.

- Route Pre-Labeled Wye Harness
- Grommets
- Una Bits

Step 8

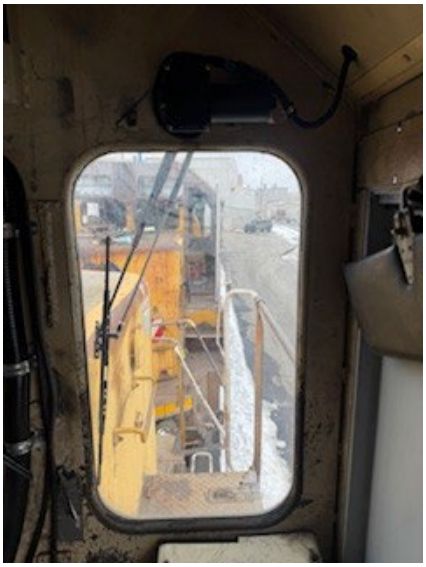
5)

Remove Conductor light panel and route pre- assembled Harness's.

- Route Pre-labeled Harness's
- Grommets
- Una Bits

Steps 6-9

6)

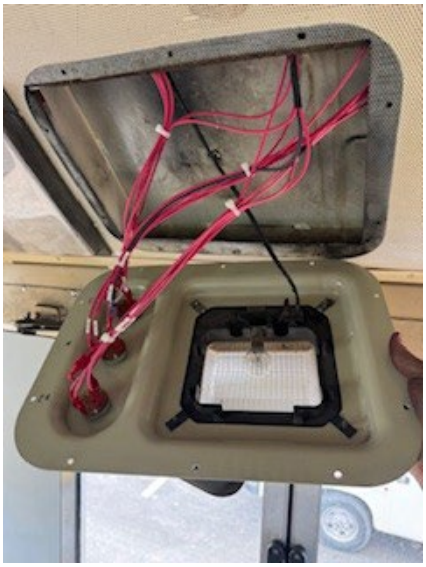


Drill 11/32 holes in all factory motor shaft locations, install all motors.

- 11/32 drill bit

Steps 10 -11

7)



Wire switch connections on the Engineer and Conductor side. Test

- five wiper switches
- wire terminals
- wire labels
- hardware
- wiper switch labels

Steps 12 -13

8)

Place wiper arms on all locations but the center. 50-degree sweep

- wiper arms
- wiper blades
- hardware

Step 14

9)

Place Center wiper arms on. 110-degree sweep

- wiper arms
- wiper blades
- hardware

Step 15

"Park **Position**" refers to the position of the wiper blade when the motor is switched off.

There are 4 factors to consider when defining park position.

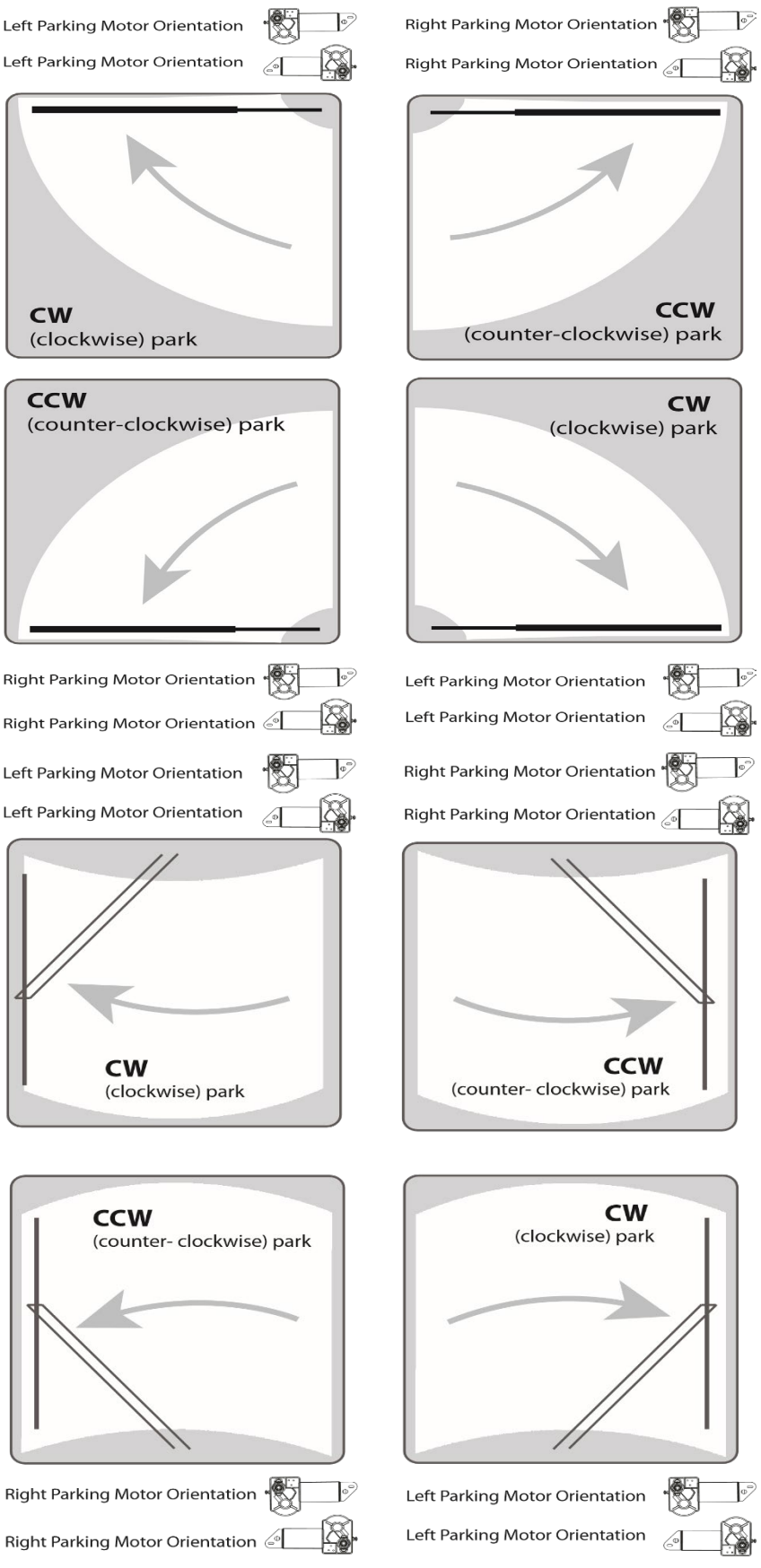
1. Viewpoint of the person observing the park position (in these examples the viewpoint is from the outside the cab).
2. Position of the motor assembly relative to the glass (motor mounted above or below the glass).
3. Mounting orientation of the motor.
4. Parking position of the motor (left or right).

Blade Park positions as seen from **outside** the cab.

So, to correctly specify the "Park position" all factors must be defined.

1. Observe the park position from **outside** the cab.
2. Is the motor mounting position **above** or **below** the glass?
3. Is the mounting orientation of the motor (**right side up** or **upside down**)?
4. Is the motor a **left park** or **right park** motor?

Blade Park positions as seen from **outside** the cab.



How to Change Sweep Angle and Park Position on a TEK Technology

This pictorial defines the procedure to change sweep angles and park positions on the TEK Technology wiper motor.

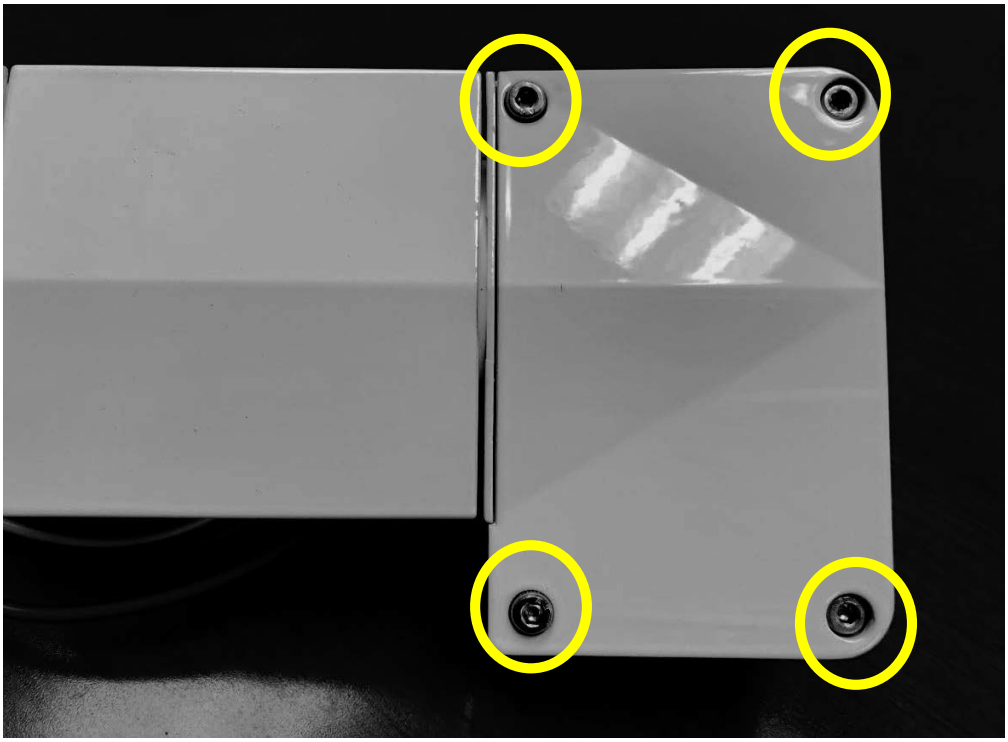
The TEK Technology wiper motor can be set to sweep at angles of 40, 50, 60, 70, 80, 90, 100, or 110 degrees.

The TEK Technology motor can be set to park the wiper arms and blades on the left side of the windshield, or on the right side of the windshield. Please see the technical brief related to Park Position for definitions and details.

Wiper Motor

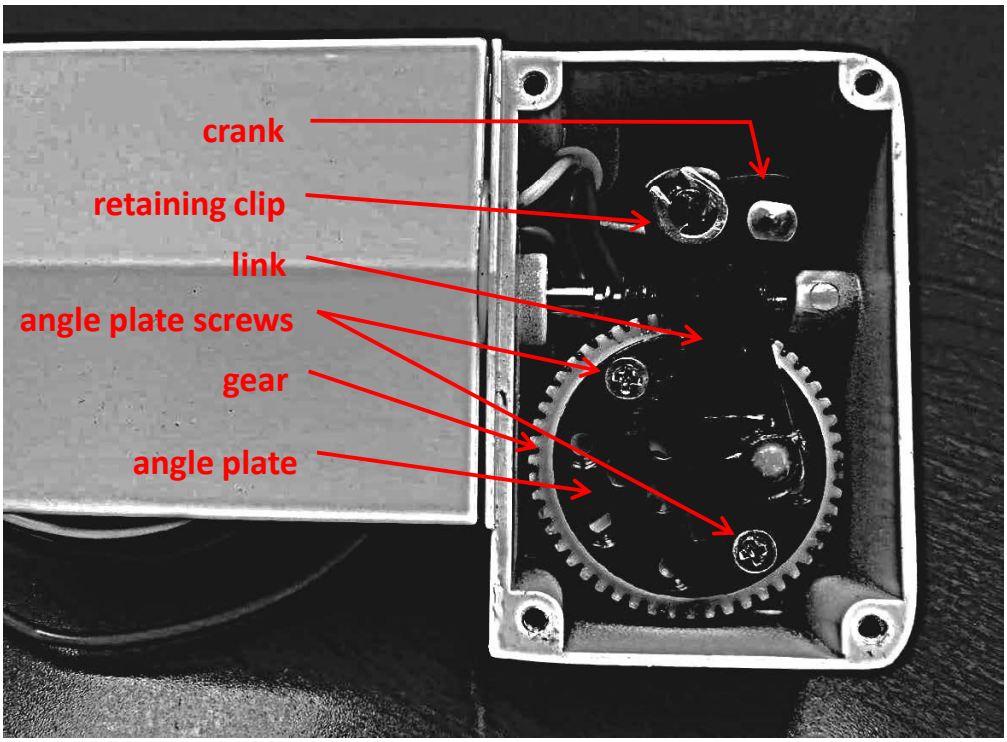
1)

2)



On the back of the TEK motor, remove the (4) retaining screws using an Allen key (provided with the motor), or a hex head.

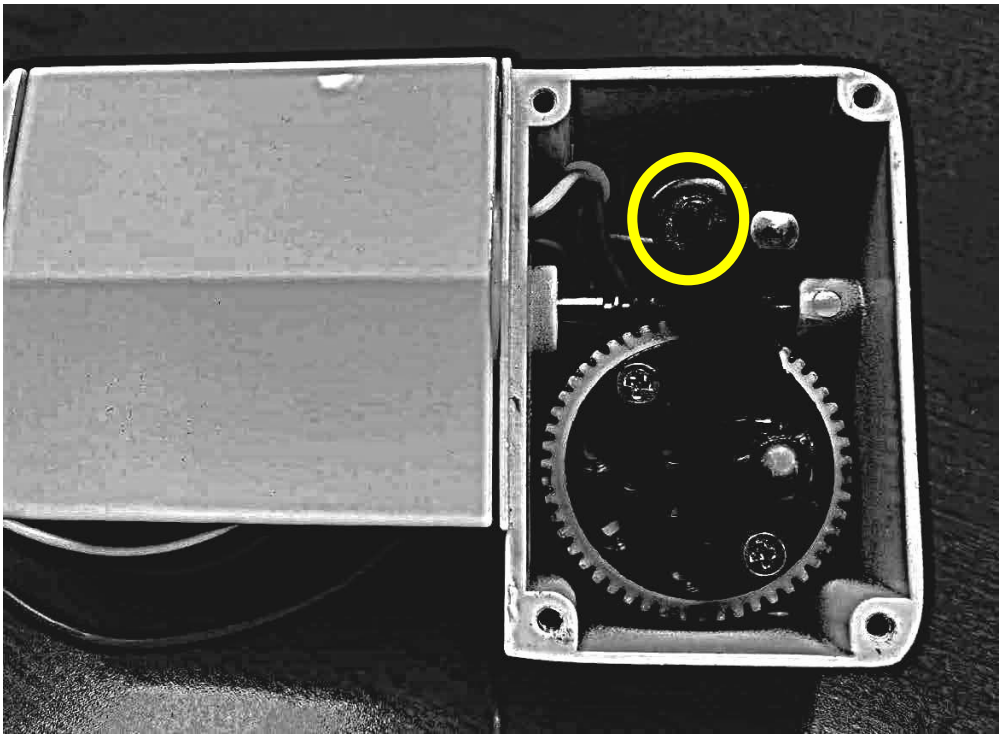
3)



Set the cover aside, making sure to retain the sealing gasket.

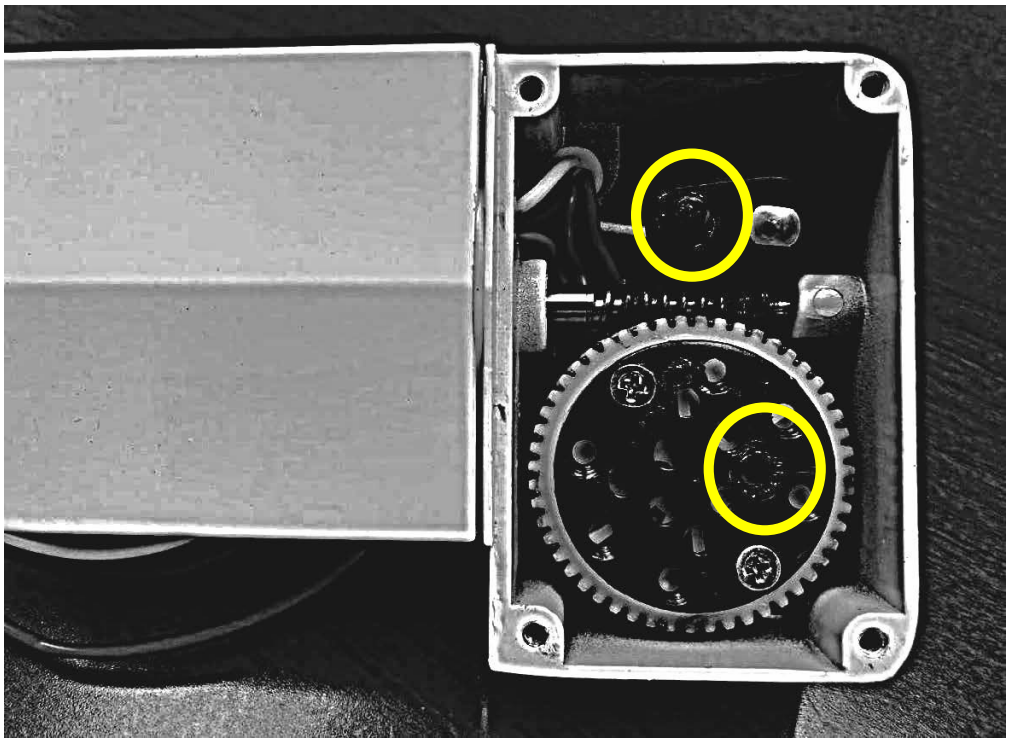
Once inside the motor, take note of the crank, retaining clip, link, angle plate screws, gear, and angle plate

4)



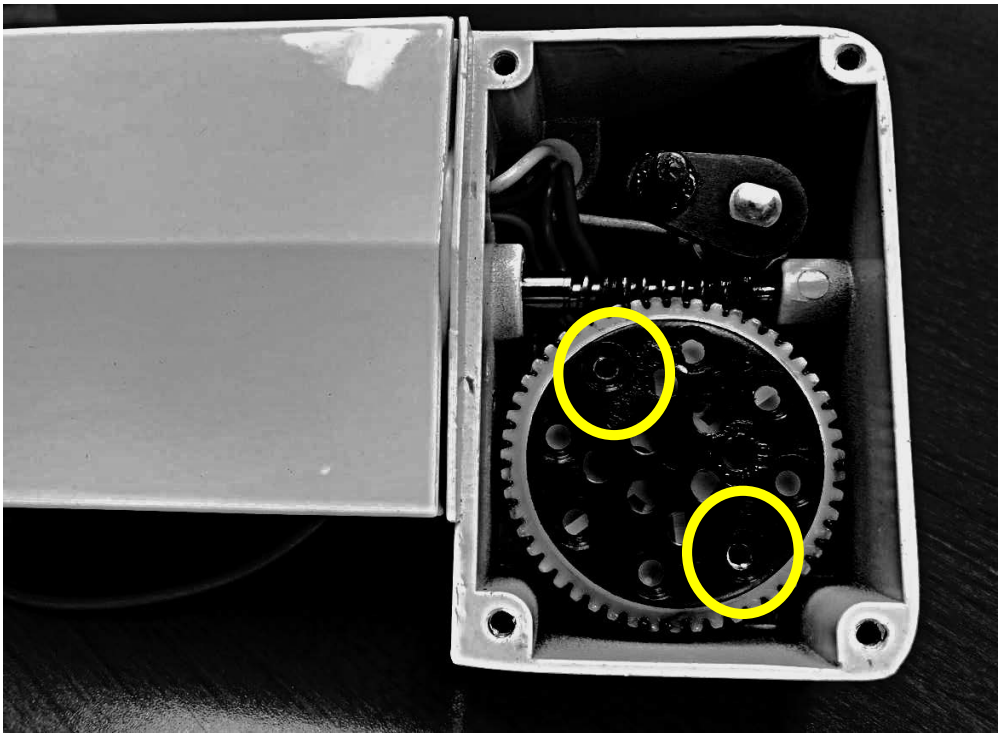
Using a small, flathead screwdriver, push the retaining clip off the crank pin.

5)

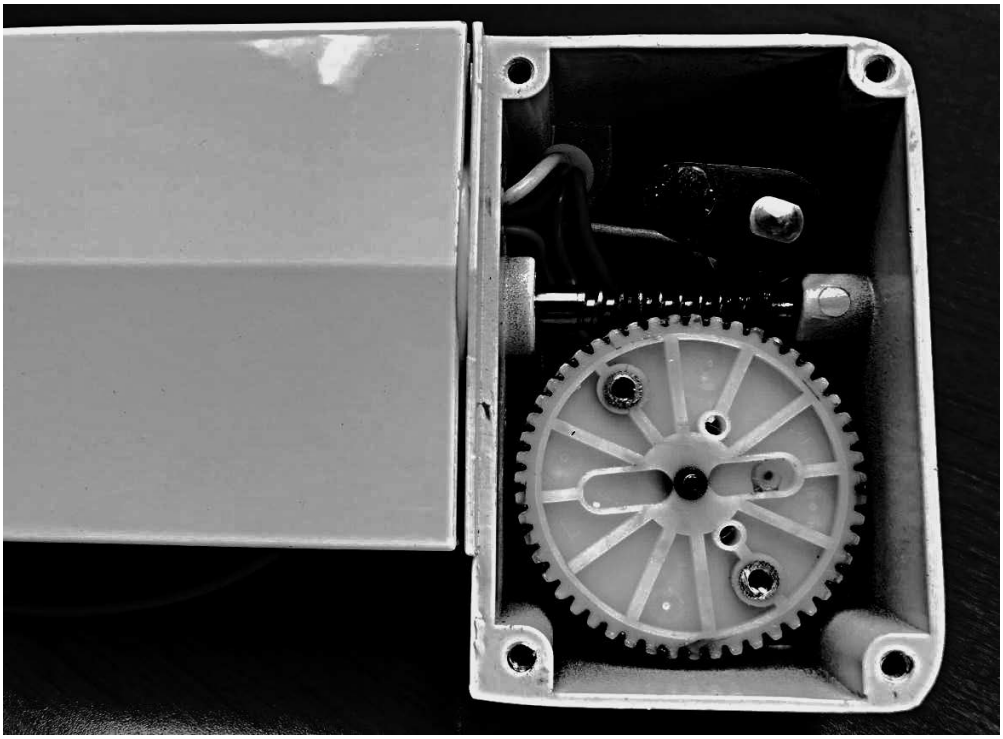


Lift the link straight up, off the crank pin and out of the hole on the angle plate.

6)



Using a #2 Phillips head screwdriver, remove the two M4 angle plate screws, and their lock washers. Caution: the screws are soft brass and can strip easily.



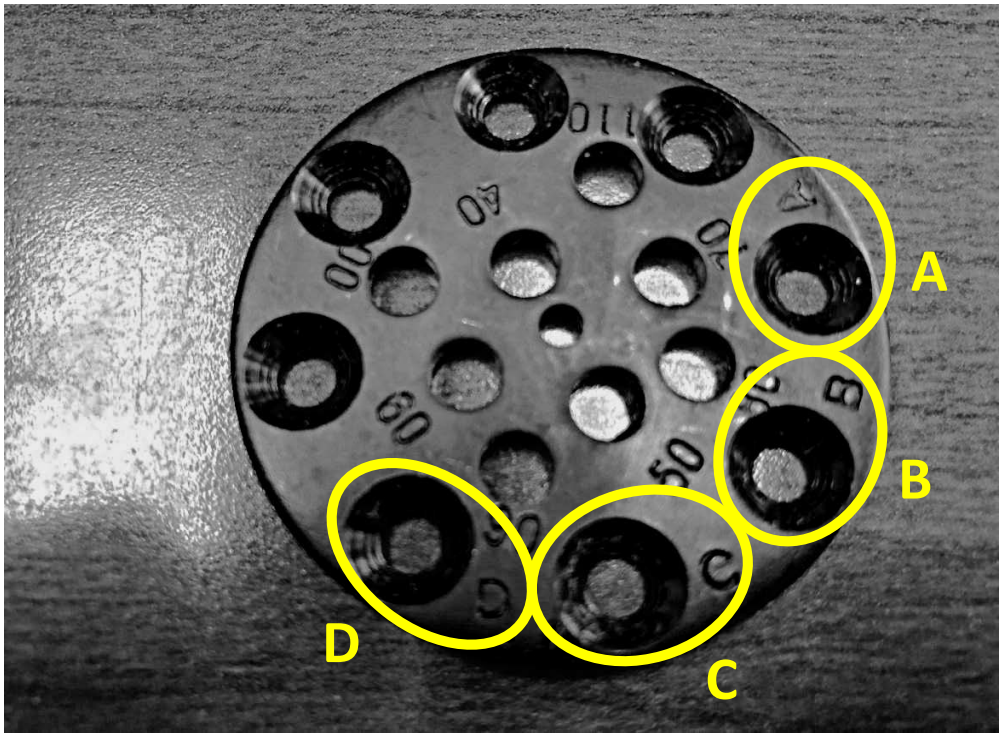
7)

Lift the angle plate straight up, out of the gear.

The two channels in the gear determine the park position (left or right) of the motor.

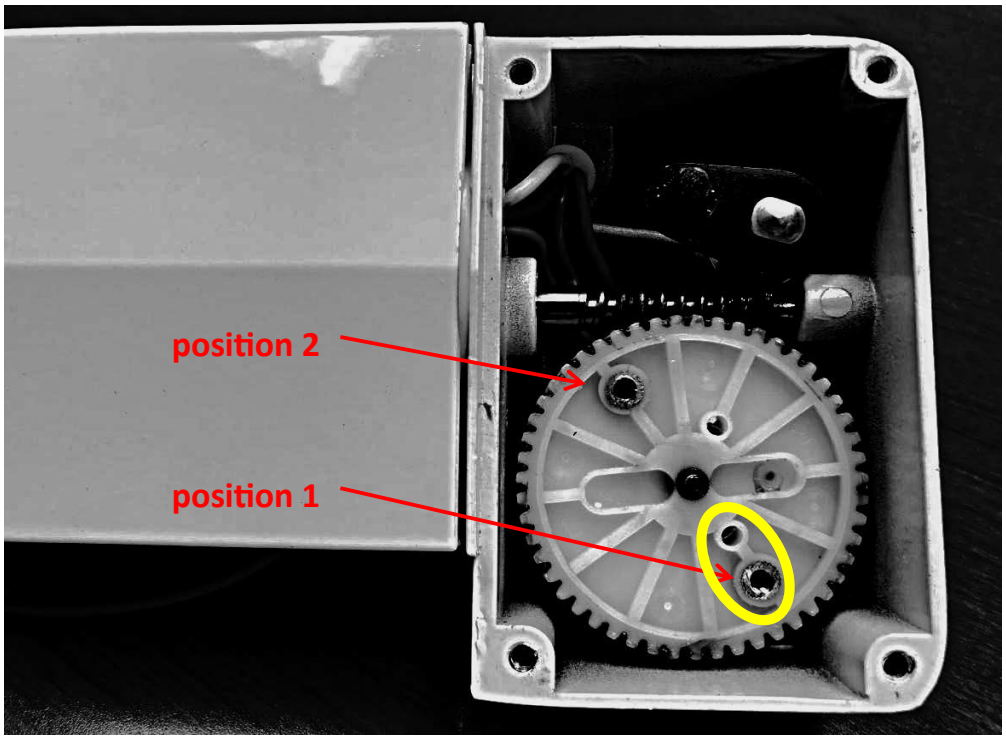
When re-assembling, the desired angle hole will need to be positioned above one of these two channels, or else the pin on the link will not properly engage.

8)



Note that around the perimeter, the angle plate has four holes, stamped "A", "B", "C" and "D"

9)



To achieve the desired sweep angle, use the chart in step 9.

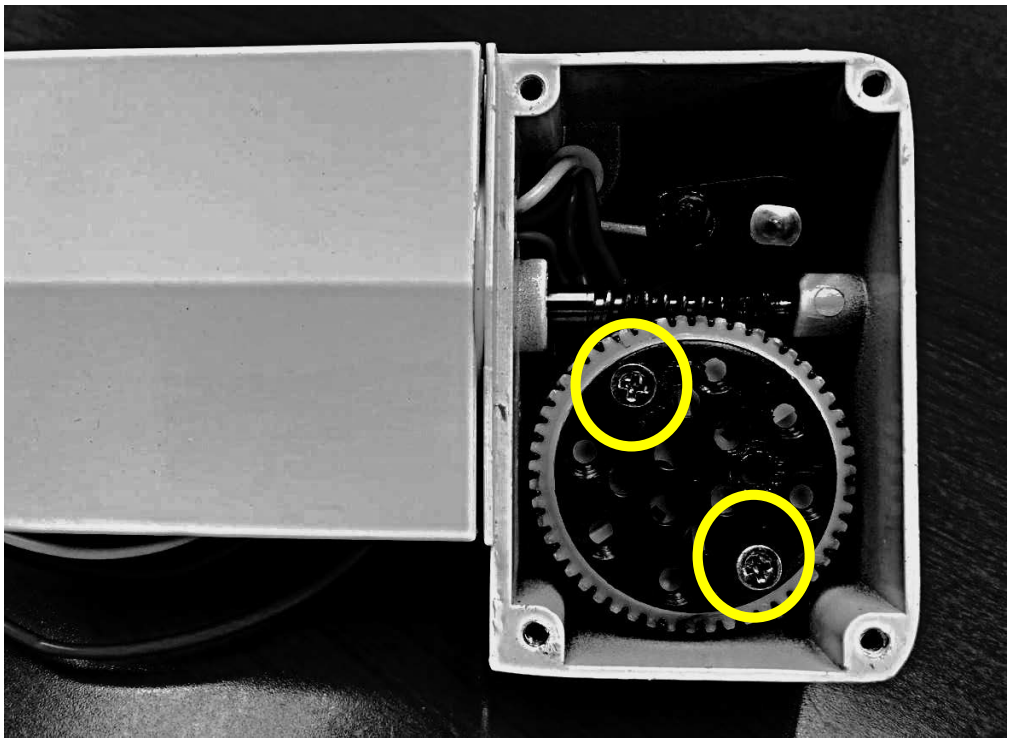
Position the correct stamped hole, over the correct position on the gear. Confirm that the desired angle (stamped on the angle plate) is positioned over one of the channels in the gear.

Position 1 is always closest to the hole.

10)

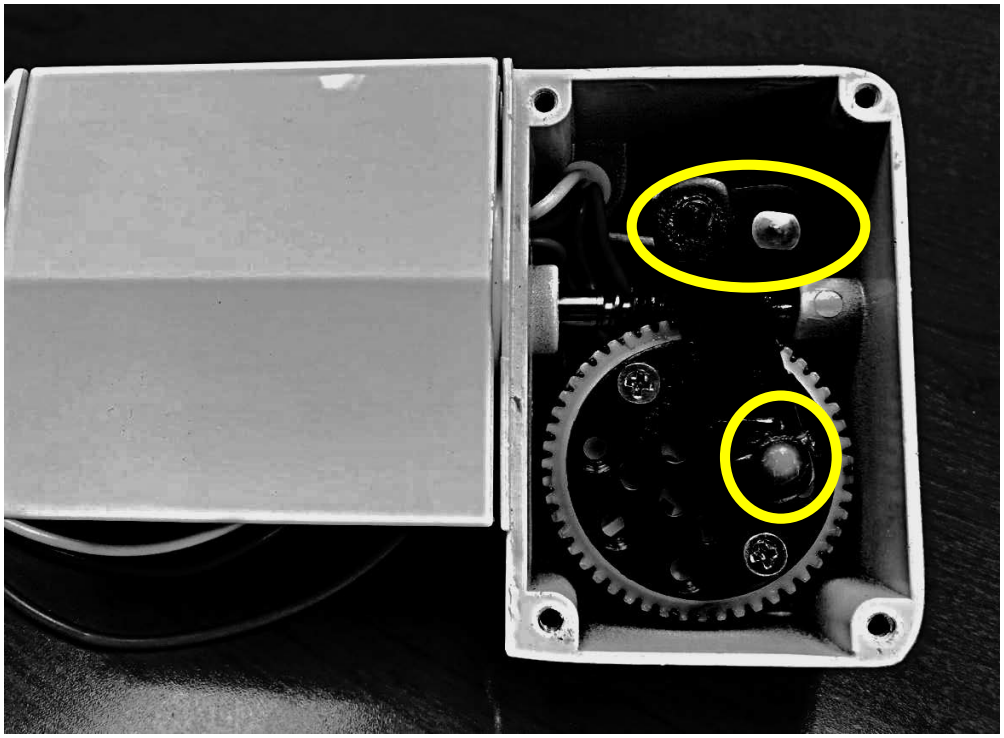
40 degrees of sweep, parked right	position stamped hole	D	over position 2
40 degrees of sweep, parked left	position stamped hole	D	over position 1
50 degrees of sweep, parked right	position stamped hole	D	over position 1
50 degrees of sweep, parked left	position stamped hole	D	over position 2
60 degrees of sweep, parked right	position stamped hole	B	over position 2
60 degrees of sweep, parked left	position stamped hole	B	over position 1
70 degrees of sweep, parked right	position stamped hole	B	over position 1
70 degrees of sweep, parked left	position stamped hole	B	over position 2
80 degrees of sweep, parked right	position stamped hole	C	over position 1
80 degrees of sweep, parked left	position stamped hole	C	over position 2
90 degrees of sweep, parked right	position stamped hole	A	over position 2
90 degrees of sweep, parked left	position stamped hole	A	over position 1
100 degrees of sweep, parked right	position stamped hole	C	over position 2
100 degrees of sweep, parked left	position stamped hole	C	over position 1
110 degrees of sweep, parked right	position stamped hole	A	over position 1
110 degrees of sweep, parked left	position stamped hole	A	over position 2

11)



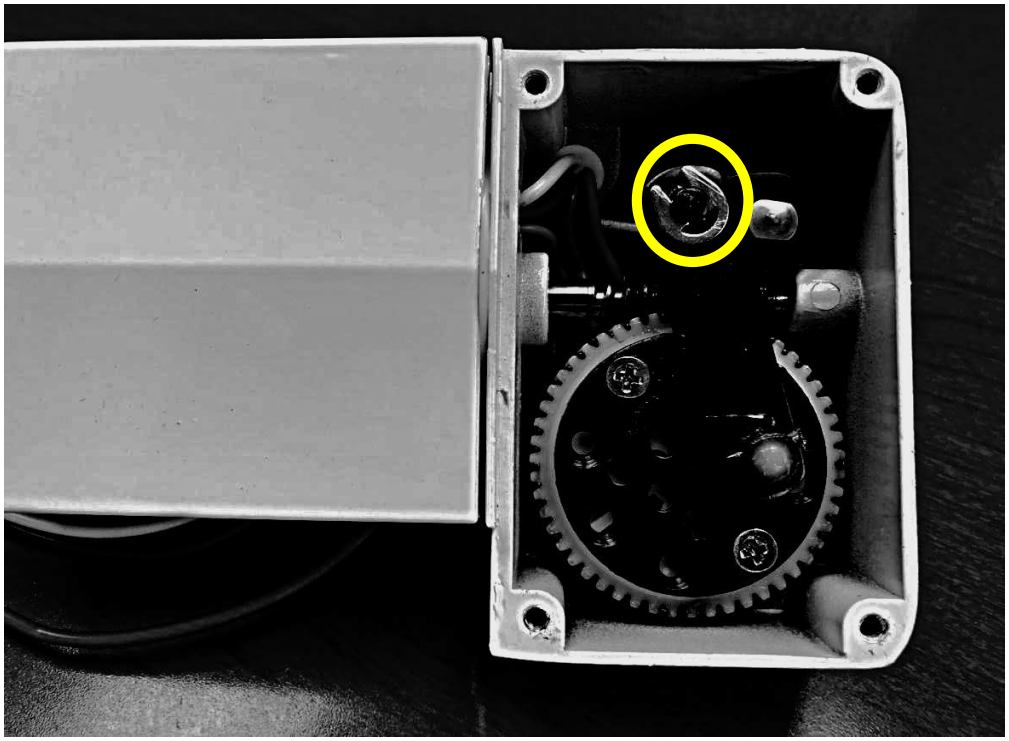
Re-install the two M4 angle plate screws, and their lock washers. Tighten with a #2 Phillips head screwdriver, until the lock washer's lock.

12)



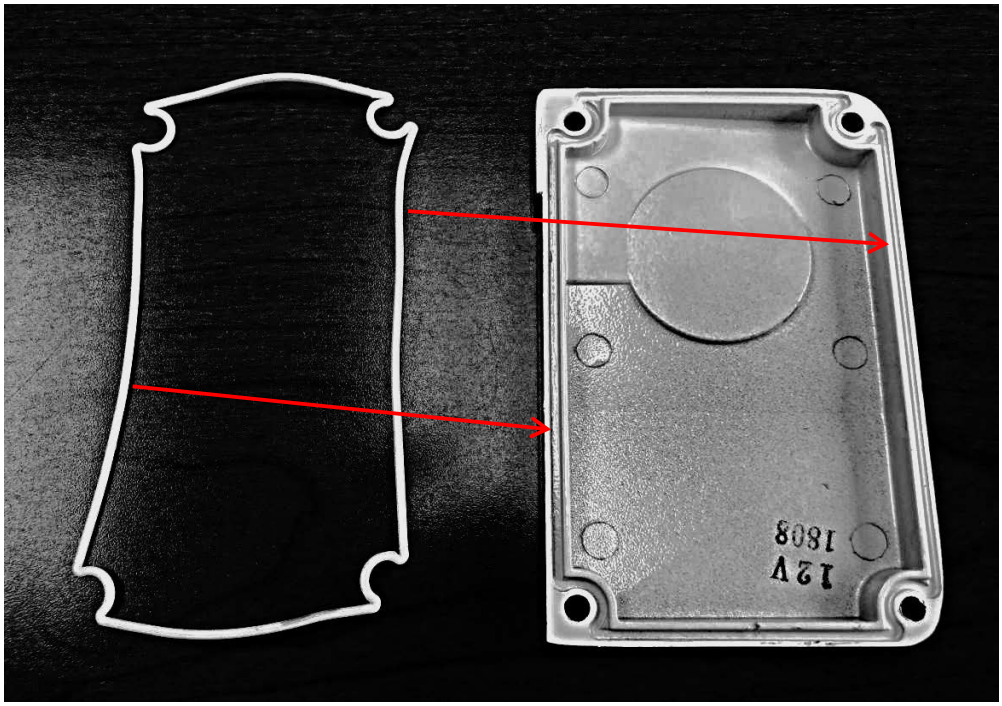
Re-install the link, moving the crank to allow both the pin on the crank to engage the hole in the link, AND the pin on the link to engage the hole on the angle plate at the same time. If the pin on the link does not properly seat itself in the hole on the angle plate, confirm that the hole on the angle plate is positioned over one of the channels in the gear.

13)



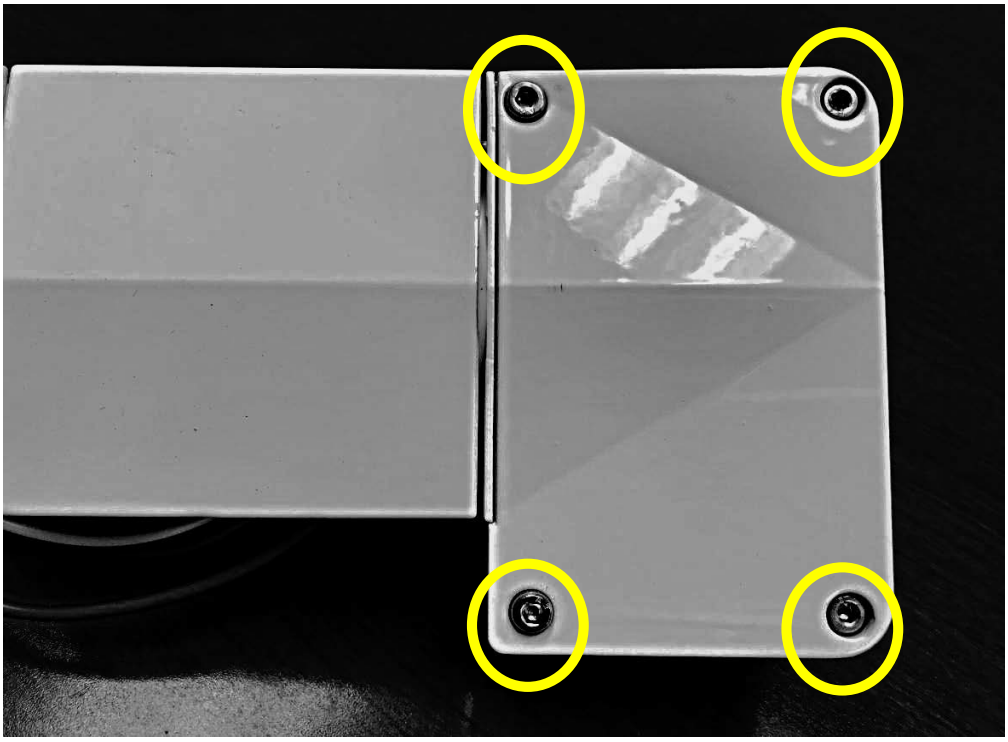
Re-install the retaining clip, making sure that the flat side of the clip is downward. The link is spring-loaded, so push down on the link to ensure that the retaining clip engages the groove in the crank pin.

14)



Before re-installing the cover, make sure that the gasket is properly seated in the grooves of the cover as shown.

15)



Re-install the motor cover, and tighten the (4) hex head screws, using an Allen key (provided with the motor), or a hex head.

\ _

Installation Procedure for TEK Technology Wiper Motor Kits

This section describes the process for installing TEK Technology Wiper Motor Kits.

Please follow all safety protocols required by your railroad.

TEK motors can be configured to sweep at angles of 40, 50, 60, 70, 80, 90, 100, or 110 degrees. Motors are preset for specific applications; please refer to the marked boxes for correct placement.

The TEK motor allows the wiper arms and blades to be parked on either the left or right side of the windshield.

Refer to the technical brief regarding Park Position for detailed definitions.

1. Remove all pneumatic wiper blades, arms, motors, and lines.

2. Cap air lines in the sub-base floor to prevent air leaks.

3. Remove and install the power supply mount in the electrical cabinet using the hardware provided. The power supply terminal board and fuse panel are pre-mounted for easier installation.

4. Install the breaker mount and route wires to the control breaker. Connect BP90 to the CB Positive and BN90 to the CB Negative, as shown in the provided print.

5. Route the 74v+ and 74v- wires to the power supply and attach them to the 74v+ and 74v- terminal screws.

6. Remove the light panel above the engineer and conductor seats on both sides of the locomotive. Remove the existing lights, labeling wires if needed for reinstallation. Remove wiper valves and knobs, flip the panel over 180 degrees, use the wiper nameplate to mark new holes if needed, and drill holes to match the nameplate size. Clean and paint panels as necessary. Reinstall the light in the flipped panel.

7. Route the engineer harness from the engineer light panel opening to the fuse panel and terminal board next to the power supply. Terminate wires per print: 24v+ to the fuse panel and 24v- to TB. Route the front engineer harness to the front engineer window motor location and the rear engineer harness to the rear motor location, leaving enough slack for proper door movement. Provided una bits and grommets should be used.

8. Route the front center Wye cable from the front number boards and motor locations to the engineer light panel opening. Use the provided una bits and grommets.

9. Route the conductor harness from the conductor light panel opening to the fuse panel and terminal board next to the power supply. Terminate wires per print: 24v+ to the fuse panel and 24v- to TB. Route the rear conductor harness to the rear conductor motor location and the front conductor harness to the front motor location, leaving enough slack for proper door movement. Provided una bits and grommets should be used.

10. Using the provided 11/32 drill bit, drill out existing wiper shaft holes in all six locations and clean up metal shavings.

11. Remove the nut and washer from each motor shaft individually and install motors according to the packaging for specific locations: Center (x2), Engineer front, Engineer rear, Conductor front, Conductor rear. Motors are preset for park and sweep angle from the factory to speed up installation. Any motor can function in any location once set for the proper park and sweep angle. Spacers may be required for the motor foot mount; hardware should be used.

12. Wire switch connections on the engineer and conductor sides as shown in the provided print: 24v+ to B, SW-L to L, SW-H to H, SW-p to P, 24v- splice connector to splice connector. Perform this for all five wiper switches and use provided labels to mark Engineer front, Engineer rear, Center, Conductor front, and Conductor rear.

13. Test the wiper motors by turning on breakers and checking each motor individually, then on low, then on high all together. Take note of shaft direction and park location. Once testing and verification is complete, secure wires with zip ties, install switches through the light panel and new nameplates, reconnect lights, and reinstall panels on both sides.

14. Place the wiper arm base over the shaft and secure it with the hardware provided, along with the nut and washer removed earlier. With the motor in park position, position the wiper blade 1/2" from the window on the right side and secure the wiper arm to the drum shaft. Repeat for the remaining three windows.

15. Install the center wiper arm on the drum shaft with the blade on the left side, ensuring the tip of the blade is 1/2" from the window gasket before securing it. Repeat for the opposite side.

Blade Park Positions

Blade Park positions as seen from **outside** the cab.

"**Park position**" refers to the position of the wiper blade when the motor is switched off.

There are four factors to consider:

1. Viewpoint of the observer (these examples use a viewpoint from outside the cab).
2. Position of the motor assembly relative to the glass (whether the motor is mounted above or below the glass).
3. Mounting orientation of the motor.
4. Parking position of the motor (left or right).

How to Change Sweep Angle and Park Position on a TEK Technology Wiper Motor

This section explains the procedure to change sweep angles and park positions on the TEK Technology wiper motor.

The TEK Technology wiper motor can be set to sweep at angles of 40, 50, 60, 70, 80, 90, 100, or 110 degrees.

The motor can park the wiper arms and blades on either the left or right side of the windshield. Please refer to the technical brief for more information regarding park positions.

1. On the back of the TEK motor, remove the four retaining screws using an Allen key (provided with the motor) or a hex head tool.
2. Set the cover aside, making sure to keep the sealing gasket. Inside the motor, observe the crank, retaining clip, link, angle plate screws, gear, and angle plate.
3. Using a small, flathead screwdriver, push the retaining clip off the crank pin.
4. Lift the link straight up, off the crank pin, and out of the hole on the angle plate.
5. Using a #2 Phillips head screwdriver, remove the two M4 angle plate screws and their lock washers. Note: The screws are soft brass and can strip easily.

6. The angle plate has four holes around its perimeter, stamped "A", "B", "C", and "D".

7. To set the desired sweep angle, use the chart provided. Place the correct stamped hole over the proper position on the gear. Confirm that the desired angle (marked on the angle plate) is positioned over one of the gear channels. Position 1 is always closest to the hole.

8. Re-install the two M4 angle plate screws and their lock washers. Tighten with a #2 Phillips head screwdriver until the lock washer's lock.

9. Re-install the link by moving the crank so both the pin on the crank engages the hole in the link, and the pin on the link engages the hole on the angle plate. If the pin does not seat properly, check that the hole on the angle plate is positioned over one of the gear channels.

10. Re-install the retaining clip, ensuring the flat side of the clip is facing down. The link is spring-loaded, so push down on it to ensure the retaining clip engages the groove in the crank pin.

11. Before re-installing the cover, confirm the gasket is properly seated in the cover grooves.

12. Re-install the motor cover and tighten the four hex head screws using an Allen key or hex head tool.

Sweep Angle and Park Position Chart

- 40 degrees of sweep, parked right: position stamped hole D over position 2
- 40 degrees of sweep, parked left: position stamped hole D over position 1
- 50 degrees of sweep, parked right: position stamped hole D over position 1
- 50 degrees of sweep, parked left: position stamped hole D over position 2
- 60 degrees of sweep, parked right: position stamped hole B over position 2
- 60 degrees of sweep, parked left: position stamped hole B over position 1
- 70 degrees of sweep, parked right: position stamped hole B over position 1
- 70 degrees of sweep, parked left: position stamped hole B over position 2
- 80 degrees of sweep, parked right: position stamped hole C over position 1
- 80 degrees of sweep, parked left: position stamped hole C over position 2
- 90 degrees of sweep, parked right: position stamped hole A over position 2
- 90 degrees of sweep, parked left: position stamped hole A over position 1
- 100 degrees of sweep, parked right: position stamped hole C over position 2
- 100 degrees of sweep, parked left: position stamped hole C over position 1
- 110 degrees of sweep, parked right: position stamped hole A over position 1
- 110 degrees of sweep, parked left: position stamped hole A over position 2

ELECTRIC WIPER CONTROL VERSION A

REVISION B
DATE:1–26

TEK TECHNOLOGY

Designed By TEK Technology

DRAWING NO. 3479000

DRAWN BY MTOWNZEN

CHK'D BY D HAYS

NO SCALE

SHEET 01 OF 01

ENGINEER FRONT
WHITE
GREEN
BLUE
RED
24V–
SPLICE CONNECTOR
SW–L
SW–H
SW–P
ENGINEER FR SW

ENGINEER REAR
D24V+
C24V+
ENGINEER REAR SW

MIDDLE FRONT L.H.
MIDDLE FRONT R.H.
E24V+
MID SW

CONDUCTOR FRONT
B24V+
CONDUCTOR FR SW

CONDUCTOR REAR
A24V+
CONDUCTOR REAR SW

TB–WP
SPLICE

FUSE PANEL
7.5 A

24V+

35 AMP
CB WIPERS
CB CONT–3 (POS.)
CB CONT–1 (NEG.)
BP90
BN90
OFF
W74V+
W74V–

74 VOLT TO 24 VOLT POWER SUPPLY