HOLLROCK ENGINEERING, INC.
Quick Pick Range Ball Picker
Staggered Configuration
(QP9E, QP15E, QP21E)

Figure1: 9-Foot Staggered Configuration Range Ball Picker (QP9E)

Parts List

Your ball picker comes with the following parts:

Part #	Part Name	Quantity
QF1	Quick Pick 9-foot Triangular Frame	1
QF2	H-Frame	1
QF3	Swivel Channel	1
QF3A	3/4" x 1 3/4" Swivel Channel Bolt w/nuts & washers	(1) (3) (5)*
QF3B	1/2" x 1" Caster Wheel Attachment Bolt w/nuts & washer	4
QF3C	1/2" x 2" Swivel Channel Attachment Bolts	2
QF4	3-foot Lightweight Section Gang	(3) (5) (7)*
QF5	QP9E Mounting Assembly, Complete	1
QE1	Front Swivel Elbow w/bolts and rings	1
QE2	Rear Rigid Elbow w/bolts (QE3) and rings	(2) (4) (6)*
R08	Range Picker Basket	(6) (10) (14)*
Q15L Q15R	Extension arms	15-foot: 2 (55") 21-foot: 2 (47") 2 (62")
QF3A	Extension arm bolts	15-foot: 2 21-foot: 4
	Grease Fittings	(3) (5) (7)*

*Note: Numbers in parentheses indicate parts for 9-foot picker, 15-foot picker, and 21-foot picker respectively.

Tools

You will need the following tools:

Tool	Quantity	Purpose
¾" wrench	2	Attach/adjust front wheel and swivel channels
7/16" wrench	2	Attach/adjust elbow bolts
1 1/18" wrench	1	Attach/adjust ¾" bolts
1 1/16" wrench	1	Attach/adjust ¾" bolts
Small adjustable wrench	1	Attach/adjust grease fittings
Grease gun	1	Fill grease fittings

Assembly

Step 1: Remove all parts from the shipping crate

Step 2: Open the parts box

Step 3: Attach the front wheel assembly to the black triangular frame

- Use four (4) ½" bolts, washers and nuts

1. Place the wheel assembly against the mounting plate (see Figure 2)

2. Slide a bolt through one of the holes in the frame, and through the corresponding hole in the wheel assembly

3. Put a washer onto the bolt, insert the bolt, and slide a second washer over the bolt

4. Screw a lock nut onto the bolt so it secures the wheel assembly to the frame

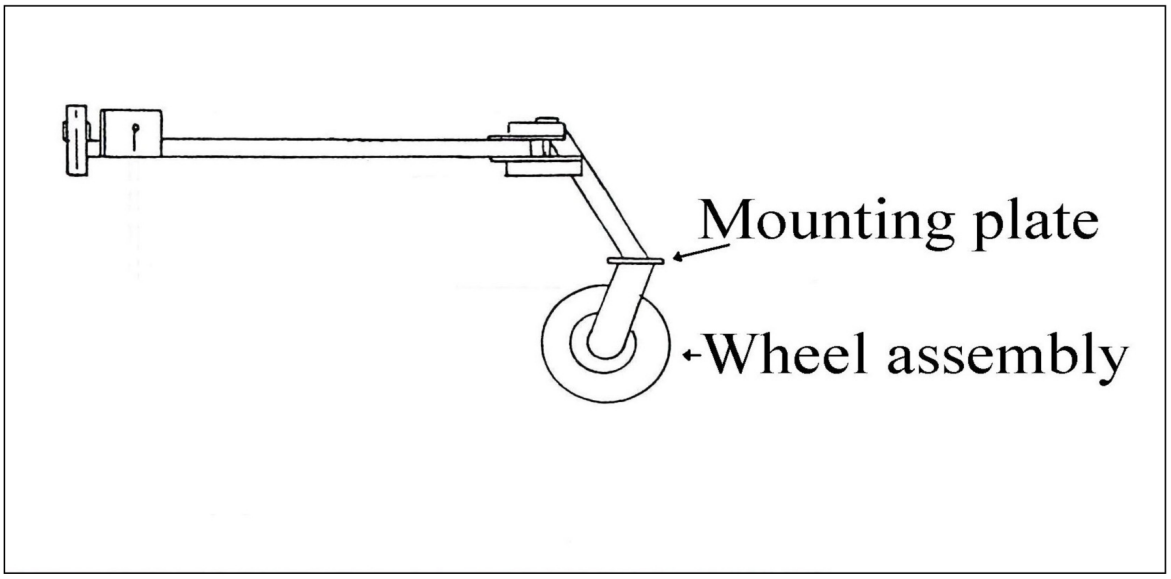


Figure 2: Schematic of wheel assembly attached to mounting plate, side view

5. Repeat steps 1-4 for the remaining three holes

Step 4: Attach the rigid elbows to the rear of the triangular frame

- Use two rigid elbows, one for each corner

1. Slide one rigid elbow (QE2) up into the collar at the left rear of the frame (see Figure 3)

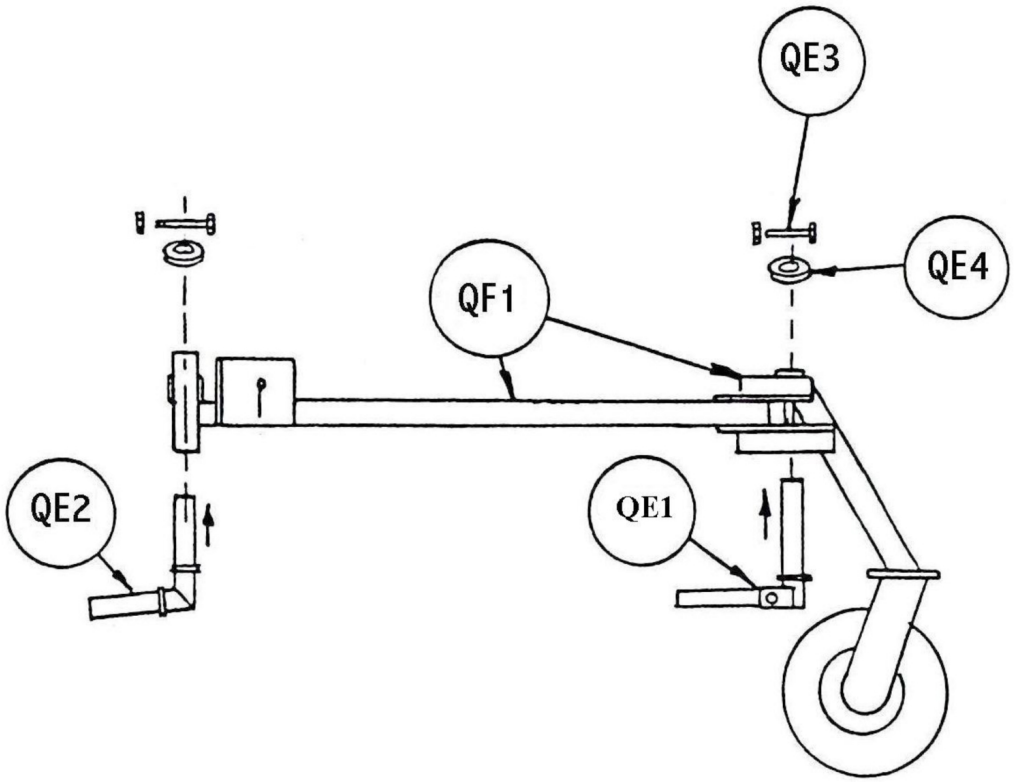


Figure 3: Schematic of attaching elbows, side view

2. Secure the elbow in the collar:
   - Slide a black elbow ring (QE4) over the top of the elbow
   - Slide a ¼" bolt (QE3) through the two holes on top of the elbow
   - Screw a lock nut onto the bolt so that it secures the washer to the elbow

3. Repeat steps 1 – 2 for the rigid elbow at the right rear of the frame

Step 5: Attach the swivel elbow to the front of the frame

1. Slide the swivel elbow up into the collar at the front of the frame

2. Secure the elbow in the collar:

- Slide a black elbow ring (QE4) over the top of the elbow
- Slide a ¼" bolt (QE3) through the two holes on top of the elbow

Step 6: Attach the red section gangs to the black triangular frame

NOTE: ATTACH THE REAR GANGS FIRST

- Locate the collar on the top of each red frame. The elbows fit into these collars.

1. Slide the bottom of the swivel elbow into a collar of a red section gang.

   Note: The spool of discs is facing away from the front wheel.

2. Push the collar onto the elbow and secure it:
   - Slide a black elbow ring (QE4) over the top of the elbow
   - Slide ¼" bolt (QE3) through the two holes on top of the elbow
   - Screw a lock nut onto the bolt so that it secures the washer to the elbow

3. Repeat steps 1-2 for the other gang section at the rear of the frame, and for the section at the front of the frame

Step 7: Attach the swivel channel (QF3) to the triangular frame

- Use two (2) ½" bolts, washer and locking nuts

1. Slide a washer onto a bolt

2. Slide the bolt through one hole at the back of the frame and the corresponding hole in the swivel channel (see Figure 4)

3. Slide another washer onto the bolt

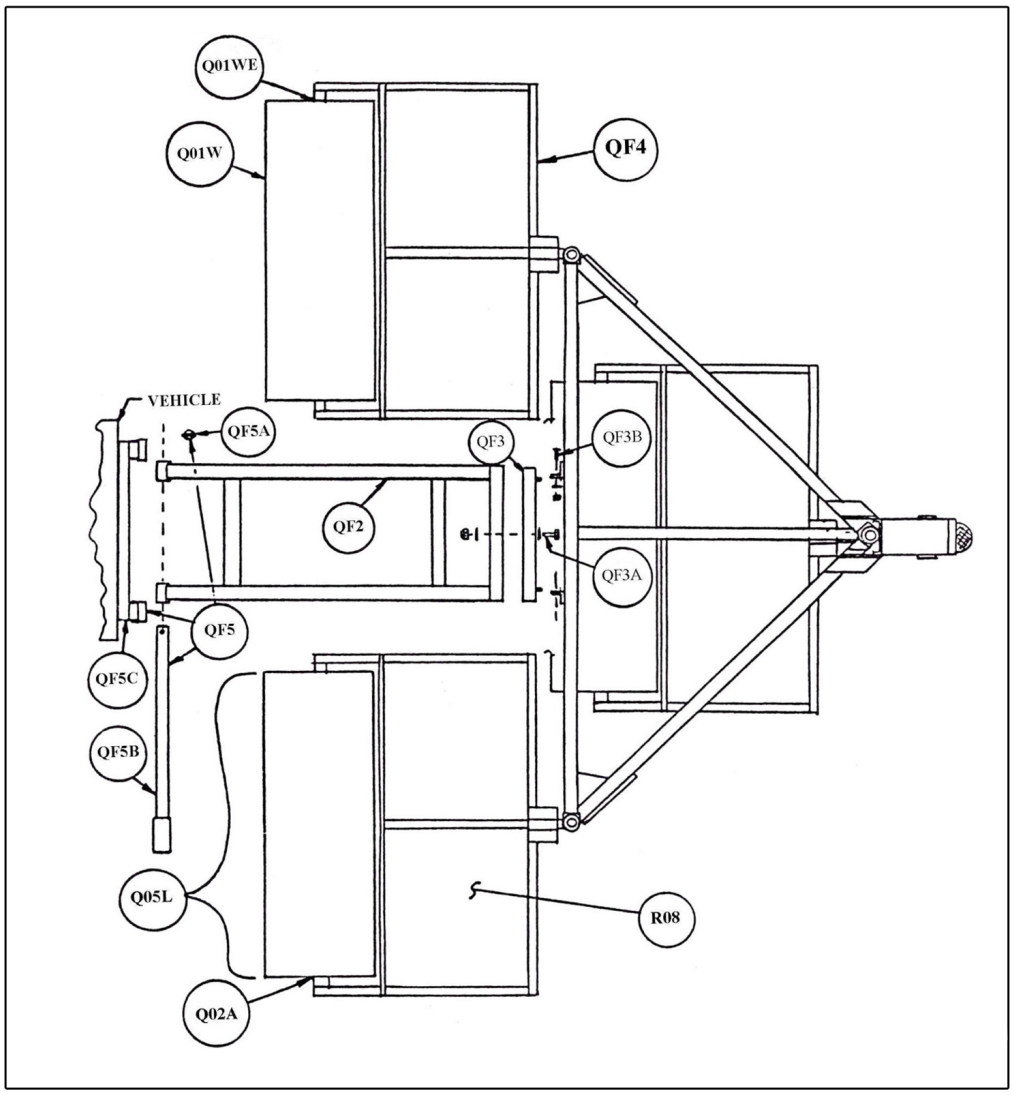


Figure 4: Swivel channel attachment and H-frame attachment, Top View

4. Screw a locking nut onto the bolt so that it secures the swivel channel snugly to the frame

5. Repeat steps 1-3 with the second bolt and hole

Step 8: Attach the H-frame (QF2) to the swivel channel

Step 9: Attach the extension arms (15-foot and 21-foot pickers only)

- Use left (Q15L) and right (Q15R) extension arms, and swivel channel nuts, bolts and washers.

NOTE FOR 21-FOOT PICKERS: THE LONGER EXTENSION ARMS ARE THE MIDDLE ARMS. THE LONGER ARMS HAVE TWO MOUNTING PLATES, ONE ON EACH END. LOCATE THE PLATES WITH THE COLLARS, AND MAKE SURE THOSE PLATES ARE AT THE REAR.

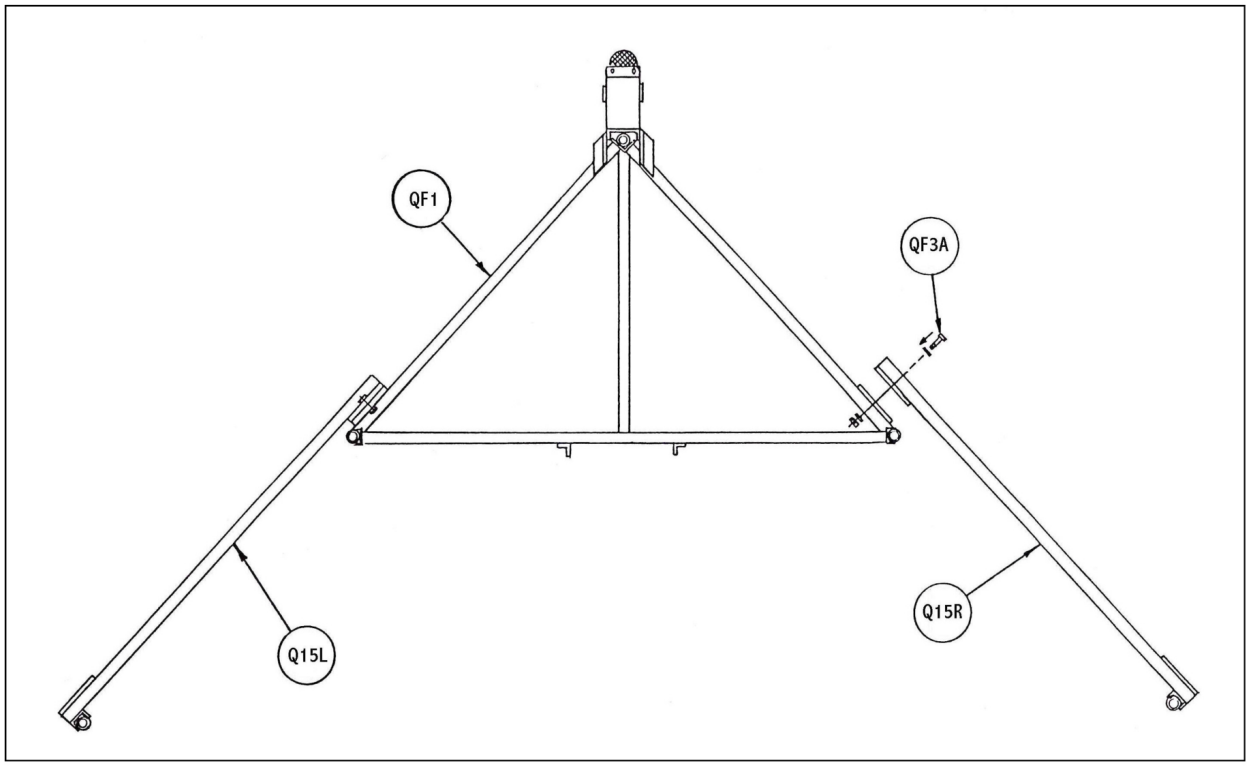


Figure 5: Schematic of Triangular Frame with Extension Arms, Top View

1. Locate the plate on the left side, rear, of the black triangular frame.

2. Lightly grease the inside surface of the plate.

3. Align the hole on the front plate of the extension arm with the hole in the frame (see Figure 5). NOTE: THE MOUNTING PLATE ON THE ARM EXTENDS UPWARD.

4. Slide a washer over a bolt.

5. Push the bolt through the hole in the plate, then the hole in the frame.

6. Slide a second washer onto the bolt.

7. Screw a lock nut onto the bolt so that it secures the arm snugly to the frame.

Repeat steps 1-6 for the right extension arm.

For 21-foot pickers:

Attach additional left and right extension arms to the rears of the initial left and right extension arms. Lightly grease the inside of the rear middle-arm mounting plates before you attach the last two arms.

<u>Step 10: Attach rigid elbows to rear of extension arms (15-foot and 21-foot pickers only)</u>

- Locate the collars at the rear of the extension arms

1. Slide one rigid elbow up into the collar at the rear of the left extension arm.

2. Secure the elbow in the collar:
   - Slide a black elbow ring (QE4) over the top of the elbow
   - Slide 1 ¼" bolt (QE3) through the two holes on top of the elbow
   - Screw a lock nut onto the bolt so that is secures the washer to the elbow

3. Repeat steps 1-2 for the right extension arm.

For 21-foot pickers: Repeat steps 1-3 for the additional extension arms.

Step 11: Attach the mounting bracket (QF5) to a vehicle

- Use hardened bolts or weld the bracket directly to the vehicle

Attach the one-piece mounting bracket to a solid bumper or mounting frame on the front of the vehicle that will be used to push the picker. Make sure that the frame is mounted between 18" and 24" from the ground.

Step 12: Insert two picker baskets into each red section gang

Step 13: Attach grease fittings

There are grease fittings holes on the elbow collars of each gang, at the rear corners of the triangular frame, and at the front of the triangular frame.

NOTE: THE ANGLED GREASE FITTING IS FOR THE FRONT OF THE FRAME

1. Locate the grease fitting hole on the top of one elbow collar of a red gang

2. Screw a threaded grease fitting into the hole

3. Repeat for each gang

4. Locate the grease fitting hole at the left rear corner of the triangular frame

5. Screw a threaded grease fitting into the hole

6. Repeat for the right rear corner of the frame

7. Locate the grease fitting hole at the front of the triangular frame

8. Screw the angled grease fitting into the hole

Step 14: Grease each fitting thoroughly

Step 15: Attach the H-frame to the vehicle

- Use the quick release connecting rod and a snap ring

1. Slide the connecting rod (the end without the cover) through the hole in the right side of the mounting bracket, then through its corresponding hole in the H-frame (see Figure 6).

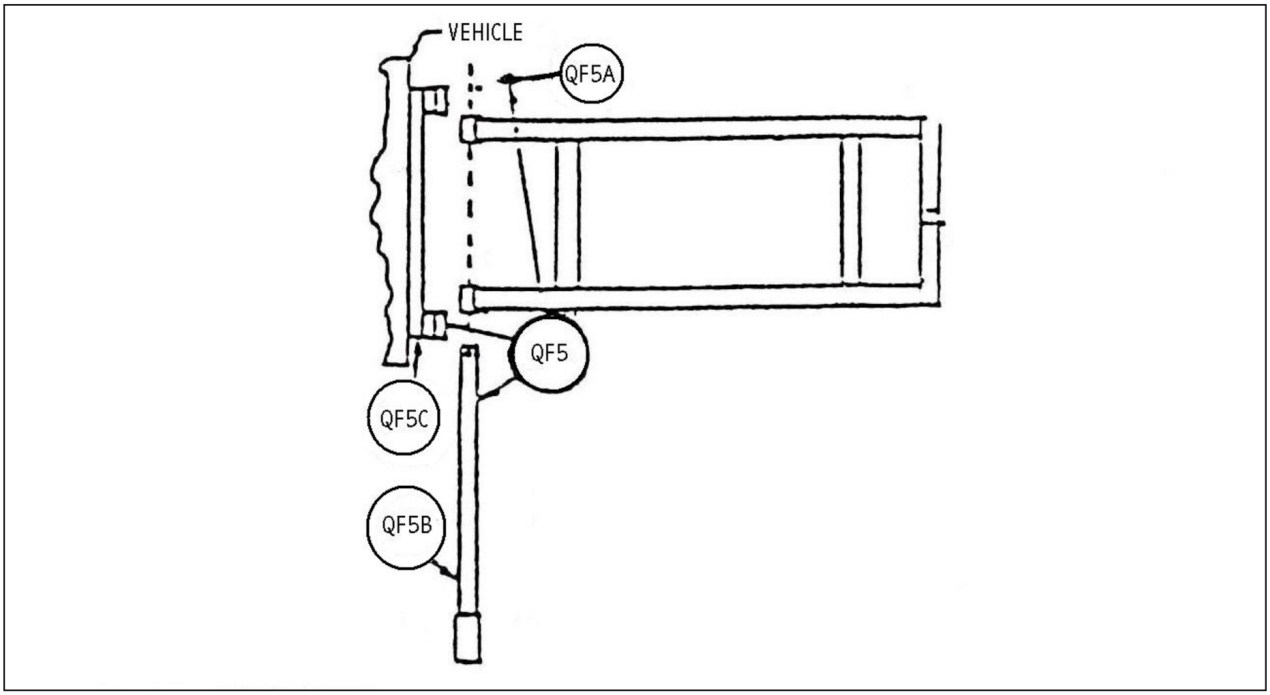


Figure 6: Schematic of Attaching the H-frame to the Vehicle, Top View

2. Slide the rod through the next hole in the H-frame, then through its corresponding hole in the mounting bracket. The frame is now connected to the vehicle.

3. Place a snap ring over the end of the connecting rod that you have just slid through the bracket and frame. The picker is now securely attached to the vehicle.

Unit Specifications

Your picker meets the following specifications:

Unit	Capacity	Width	Weight
QP9E	1500 balls	9 feet	324 lbs
QP15E	2500 balls	15 feet	454 lbs
QP21E	3500 balls	21 feet	584 lbs

Routine Maintenance

Your picker is designed to be used on grass or sod, and pushed by limited-power vehicles such as golf carts. If you drive on a more rugged terrain, you need to adjust your maintenance schedule accordingly. Avoid driving the picker on concrete, crushed stone, or asphalt.

Follow the following routine maintenance schedule:

Frequency	Task
Daily	Check the spacing of the discs and finger plates. The discs should not be touching the finger plates (see Troubleshooting for more information.
Weekly	Grease the collars
Weekly	Grease the wheels
Weekly	Grease the caster wheel
Weekly	Check the front wheel axle bolt to make sure it is tight
Weekly	Check the tire pressure and make sure there is air in the tire
Weekly	Check the spool rods to make sure that they are tight (see Troubleshooting for indications that the rods are loose)
Every 300 hours of use	Re-shim the disc spools
Every 300 hours of use	Oil the disc spool axle shafts

Call the company if you have nay questions about the terrain of your driving range, or about any technique you may need to use to assure that your picker operates efficiently.

Troubleshooting

Problem	Reason	Solution
Balls are being tossed over the back of the baskets	The picker is being driven too fast	Slow down
The picker is not picking up all the balls	1. The picker is being turned too sharply 2. The threaded spool rods are loose	1. Turn the picker less sharply. Straight driving and wide, sweeping turns provide the most effective picking 2. Tighten the nuts at the ends of the threaded rods. TIP: As part of your routine maintenance, check the threaded spool rods to see that they are snug
A disc (or more) is rubbing against a finger plate	The disc spool has shifted	Install axle shims at both ends of the axle to shift the disc spool back to its correct position (see directions below). You should not be able to move the spool back and forth. Call the company for advice and to order axle shims. TIP: Check the spacing of the discs and finger plates daily.

Discs are wearing more heavily than expected	The picker is being driven over a surface other than grass or sod	Drive the picker only on grass or sod
The picker squeaks	The spool axle needs oiling	Oil the axle. See directions below
A disc is broken	1. The pushing vehicle is too big and you are driving over the disc at the end of the spool 2. The picker is being driven too fast 3. Finger plates are rubbing 4. The picker is being driven on terrain for which it is not designed 5. The disc was struck by a line-drive golf ball	1. Call the company 2. Slow down; replace the disc (see directions below) 3. Re-shim the disc spool; replace the disc (see directions below) 4. Call the company 5. Replace the disc (see directions below); avoid driving the picker too close to a busy tee line

Directions for oiling the spool axle:

NOTE: Make sure you are using oil that contains no hydrocarbons. Call the company to order oil, if necessary.

NOTE: Check to see that the discs are centered in the finger plates and that there is no lateral movement of the spool. If not, re-shim the axle as part of this process (see directions below).

1. Remove the nut and bolt on the side of the red frame that holds the axle in place. The disc spool is now free from the picker frame.

2. Slide the axle out.

3. Apply oil to axle by smoothing oil over the surface of the axle.

4. Slide the axle back in. Make sure that the discs are centered in finger plates.

5. Reattach the nut and bolt.

Call the company to order the oil for oiling the spool axle.

Directions for re-shimming the spool axle:

NOTE: Estimate the number of shims you will need at each end of the axle so that each disc is centered in its finger plate space.

1. Remove the nut and bolt on the side of the red frame that holds the axle in place. The disc is not free from the picker frame.

2. Slide the axle out.

3. Check to make sure that the axle is oiled adequately. Add oil if necessary.

4. At one end of the frame, align the frame and the shims with your hand.

5. Slide the axle through the frame, shims and disc spool.

6. Align the shims on the opposite end.

7. Continue to slide the axle through the spool, shims and frame.

8. Reattach the nut and bolt

Directions for replacing a disc:

1. Remove the nut and bolt on the side of the red frame that holds the spool axle in place. The disc spool is now free from the picker frame.

2. Slide the spool out of the frame.

3. Locate the nuts on each side of the disc spool.

4. With a 9/16" wrench on each end of the spool, remove a nut on one end. Repeat for all four nuts.

5. Remove the discs that precede the broken disc, then remove the broken disc.

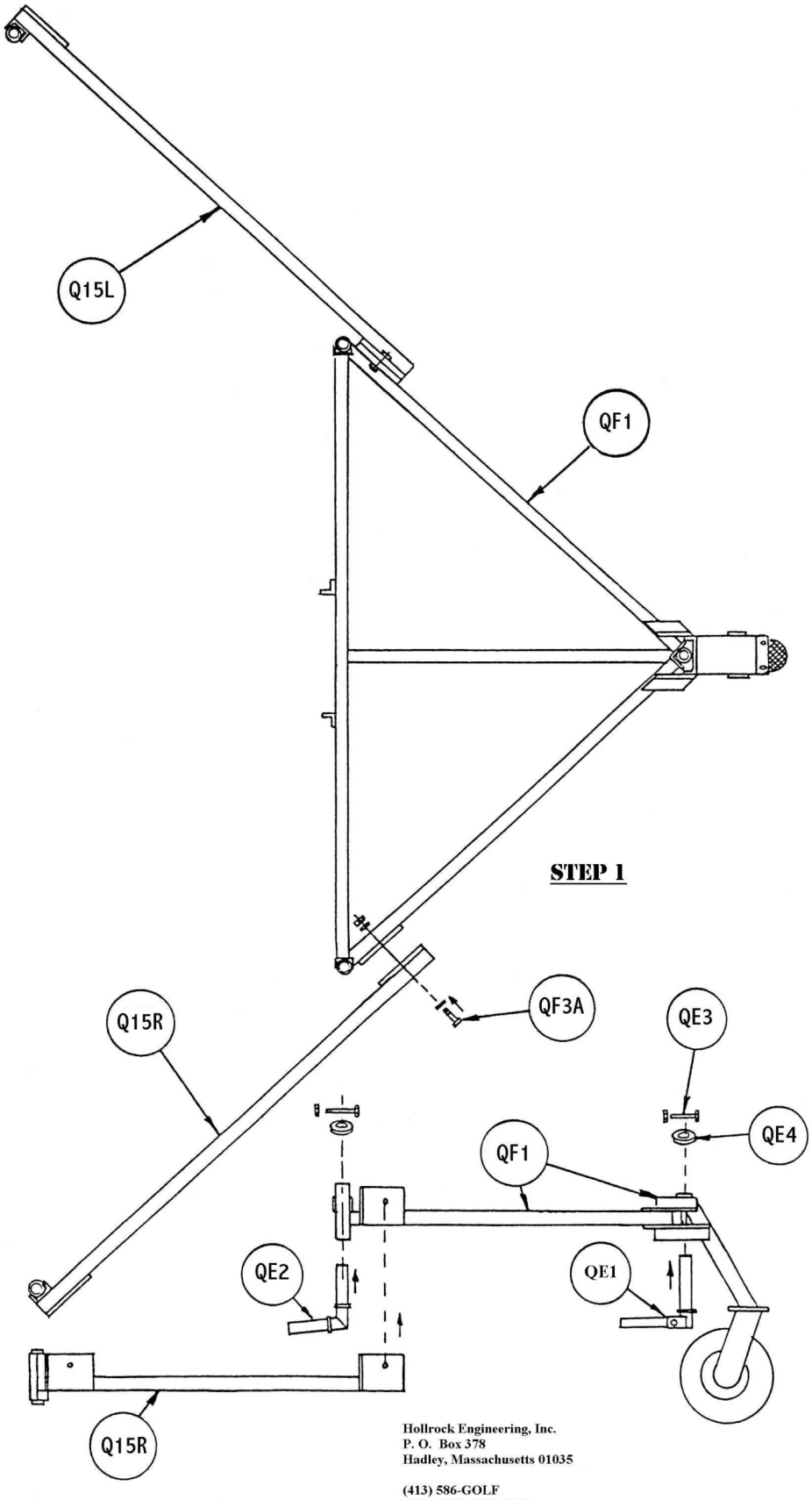
6. Replace the broken disk.

7. Replace the preceding disks.

8. Replace the nuts snugly on the disc spool.

9. Put the spool back in the frame. Make sure that the discs are centered in the finger plates.

10. Reattach the nut and bolt that hold the spool axle in the frame.


Q15L
QF1
STEP 1
Q15R
QF3A
QE3
QE4
QF1
QE2
QE1
Q15R
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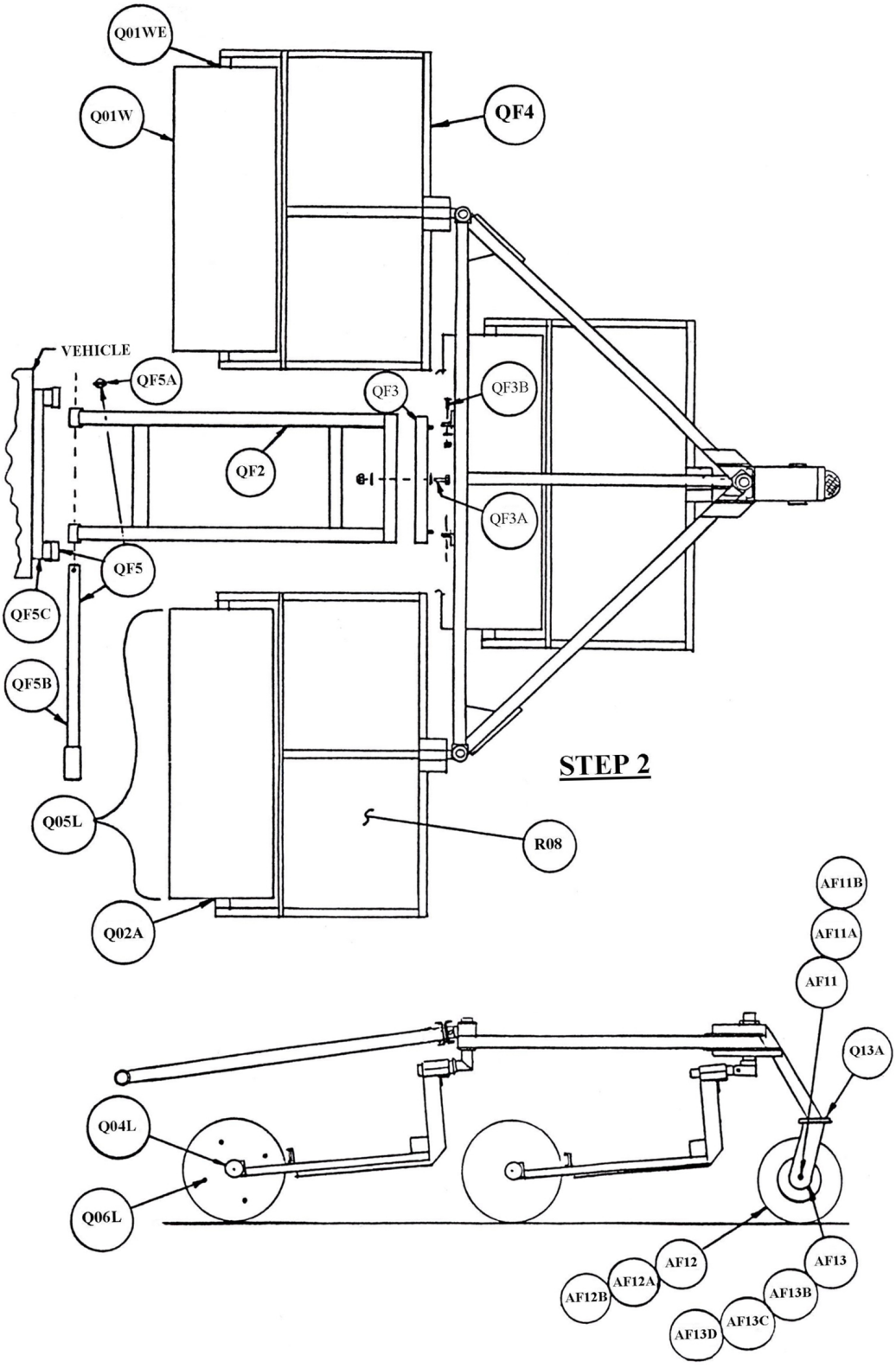
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VEHICLE
QF5A
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Q05L
R08
Q02A
STEP 2
AF11B
AF11A
AF11
Q13A
Q04L
Q06L
AF12
AF13
AF12B
AF12A
AF13B
AF13C
AF13D

Contacts

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