POW-R-QUIK
ENGINE STARTING SYSTEMS

PRQ 200p

AIR/GAS TURBINE STARTER

Pre-engaged Drive

USER MANUAL

Product Webpage:
https://powrquik.com/turbine-starters/prq-200-series/

User Manual:
https://powrquik.com/prq-200p-user-manual/

MARADYNE Corporation
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POW-R-QUIK
ENGINE STARTING SYSTEMS

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1.1. Purpose

This manual contains installation and service instructions for the POW-R-QUIK model 200p Series turbine air starter (pre-engaged type).

1.2. Application

These engine starting systems are primarily utilized in petroleum drilling and production, gas compression, water well drilling, marine, construction, power generation and co-generation equipment. When in doubt regarding the proper starting system for a particular application, the detailed installation instructions should be reviewed or a POW-R-QUIK starting system specialist should be consulted. The starting system is designed to work with compressed air, natural gas or nitrogen (for other gaseous fluids, please contact factory)
The PRQ 200p turbine air starters do not require any lubrication in the air/gas supply.

1.3. Parts and Service

For guaranteed reliability use only original Pow-R-Quik parts and repair kits. The parts are available at our distributors and re-sellers.
Starting system components are available as components or complete system from Pow-R-Quik / Maradyne or its distributors and re-sellers.
Our distributors are equipped to service our air starters
Contact factory for identifying distributors and re-sellers in your area.

1.4. Air/Gas Starting System / Typical Installation

The POW-R-QUIK Model PRQ 200p pre-engaged drive air and gas starting system consists of three basic components: starter, operating valves, air filtration and air/gas supply.

Repair technicians or service organizations without turbine starter experience should not attempt to repair this starter until they receive factory approved training from POW-R-QUIK, or its representatives. Proper operation and service of your POW-R-QUIK turbine will assure continuous reliability and best performance for many years.

Refer to the part number / nameplate on your turbine starter when ordering replacement parts or speaking to a POW-R-QUIK representative concerning your starter.

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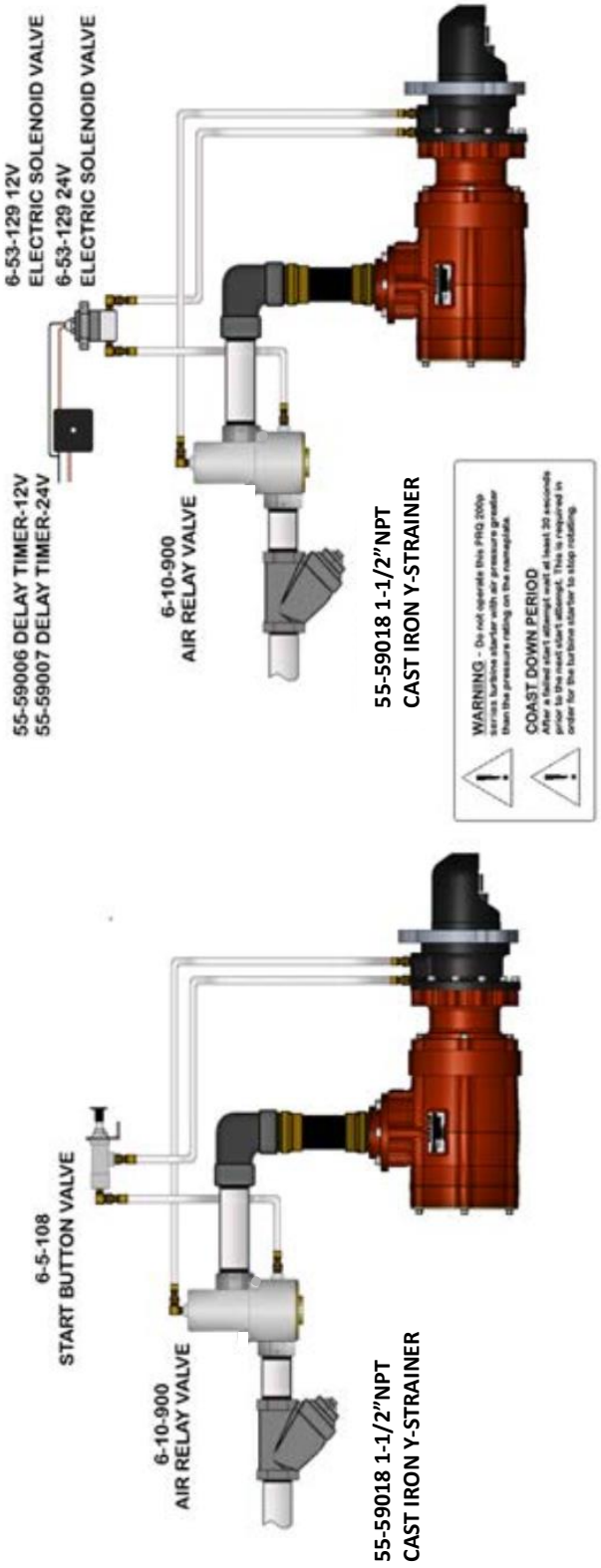
TYPICAL AIR INSTALLATION



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2.1 Starter.

The PRQ 200p turbine air starter with inertia drive may be operated using compressed air, natural gas or nitrogen (for other gaseous fluids, please contact factory).
Controlling the air turbine starter can be done locally or remotely, using manual activation (hand valve, push button) or electric solenoid.
The starter is designed for use on compressed ignited (diesel) engines with displacements up 200L and spark ignited (gas) engines with displacements up to 400L (the engine displacements are to be used as for guidelines only) - **For proper sizing of the starter to the engine, the engine breakaway torque and the parasitic loads are required for a given starting temperature.**
If unsure how to choose the starter for the engine, contact factory or a distributor

2.2 See Annex 1 for starter dimensions and air ports.

2.3 See Annex 2 for air flow and technical performance.

3.1 General.

Field repairs on air turbine starters shall be avoided. All repairs shall be done in a shop environment with access to an arbor press. Experienced mechanics will have no difficulty performing these repairs on the PRQ 200p air starter. For guaranteed quality and reliability, use only genuine Pow-R-Quik parts and repair kits.

3.2 Periodic Maintenance Inspections.

The following inspections should be performed monthly or during all regular engine servicing or inspections

1. Inspect all threaded connections for tightness.
2. If an air filter with a manual drain is used, check for moisture accumulation and drain if necessary. Check the filter element and clean or replace as required. If the Y strainer is used, it should be drained regularly removing the collected water and debris.

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3.3 Starter Installation:

1. Position properly the starter drive housing in the engine flywheel housing pad
2. Align the bolt holes in the mounting flange of the flywheel housing with the proper bolts. Torque properly the mounting bolts per engine manual
3. Install the air hose on the inlet adaptor, maintaining the same size (or larger) as the starter port
4. Install exhaust piping or muffler (if applicable 2" or larger). If extended lengths exhaust piping is used, please consult with the factory

3.4 Starter Removal

1. Remove the air hose from the starter's inlet adapter and, if applicable, remove any exhaust piping or muffler.
2. Loosen, but do not remove the starter mounting bolts.
3. Support the starter with one hand and remove the mounting bolts with the other. Proper support is required as the starter can be heavy.
4. Remove the starter from the engine

3.5 Starter Disassembly for Repair / Refresh Kit (*Refer to parts exploded view for parts/kits identification)*

Starter Refresh Kit (55-70058)

This kit contains all bolts, bearings and seals needed to refresh your PRQ turbine starter to maintain its best technical performance. It is also to be used in conjunction with kits 55-70053 (air motor major rebuild), 55-70055 (primary turbine wheel kit), 55-70056 (secondary turbine wheel kit) and 55-70054 (gear rebuild) should more extensive reconditioning be necessary. For any other parts needed see exploded view and table found in addendum below.

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3.5.1 Disassembly

General Guidelines

- Do not disassemble the starter any further than necessary to replace a worn or damaged part.
- Do not remove any part, which is a press fit in or on a subassembly unless the removal of that part is necessary for the replacement or repair.
- Always have a complete set of seals and O-rings on hand before starting any overhaul of the starter.
- Never reuse old seals or O-rings (or, in general, what is referred to as 'soft component')
- In order to prevent surface damage or distortion when clamping turbine components in a vise it is important to always use some form of covering on the jaws of the vise, be it leather or copper covering.
- Do not remove any needle bearings from a press fit unless you have a new needle bearing on hand to replace it. Needle bearings are always damaged during the removal process.
- All greasing done is with EP-2 moly or equivalent grease.

1. Using some method mark the orientation of the flange (52), drive housing (16), spool (38), nozzle liner assembly (32), stator housing (31), and any exhaust adapter that is being used to each other to allow them to be reassembled in the same configuration as they are removed.
2. Using a 3/16" Allen wrench remove the six screws (27) retaining the flange (52) to the drive housing (16) and discard the screws.
3. Using a 3/16" Allen wrench remove the eleven screws (27) and internal tooth washers (26) retaining the drive housing (16) to the spool (38) and discard the screws and washers.
4. Remove the drive housing (16) from the spool (38).
5. Press out the drive housing needle bearing (37) from the drive housing (16) and discard.
6. Using a 1/8" Allen wrench remove the two cylinder retention screws (50) securing the cylinder (49) to the drive housing (16) and remove the cylinder. Discard the screws.

Note: Be cautious the cylinder is spring loaded and may suddenly pop free.

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7. Remove O-rings 48 and 47 from the cylinder (49) and discard them.
8. Remove the drive (19) and piston (45) assembly from the drive housing (16).
9. Remove the drive snap ring (46) and O-rings (47) from the piston (45). And discard them.
10. If replacing drive (19) then press drive out of piston (45).
11. Remove return spring (51) from drive housing (16) for cleaning and inspection.
12. Using a 3/16" Allen wrench remove the six screws (39) and internal tooth washers (26) retaining the spool (38) and annulus gear (40) to the nozzle liner assembly (32) and discard the screws and washers.
13. Remove the annulus gear (40) and spool / planetary gear assembly from the nozzle liner assembly (32).

    If installing kit 55-70054 then discard the annulus gear.
14. Remove and discard O-rings (25) from the nozzle liner assembly (32) and the spool (38).
15. Press the planetary gear assembly out of the spool (38).
16. Discard the drive spacer (29) left on top of the drive bearing (18).
17. Remove and discard the spool snap ring (35).
18. Press the drive bearing (18) and the arbor shaft seal (23) out of the spool (38) and discard both.
19. Remove and discard the three snap rings (13) from the planetary gear idler shafts (11).
20. Remove the planetary gear idler shafts (11), planetary glide washers (3), and planetary gears (8) from the planetary gear housing (9). Discard the glide washers.

    If installing gear rebuild kit 55-70054 then discard the gears and idler shafts.
21. Press out the planetary gear needle bearings (14) from the planetary gears (8) and discard the bearings.
22. Using a 3/16" Allen wrench remove the six exhaust screen screws (41) and internal tooth washers (26) and remove the exhaust screen (44) or exhaust adapter if so equipped.
23. Using a 5/32"Allen wrench remove the secondary turbine wheel retaining screw (21) and motor shaft washer (20). Discard the washer the screw will be used in the next step before discarding it.
24. Thread the screw removed in step 23 into the motor shaft (2) a few threads. Press the motor shaft out of the secondary turbine wheel (6). Once clear remove the wheel, turbine wheel key (28) and short shaft spacer (7). Discard the key.

    If kit 55-70053 is being installed then discard turbine wheel and spacer.

    If kit 55-70056 is being installed then discard turbine wheel.

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25. Continue to press the motor shaft (2) out of the rear motor bearing (4). Once the motor shaft is through the rear bearing remove the stator housing (31) with the motor bearing, and bearing spring (22). Set the stator housing to the side for further disassembly later.

26. Remove O-ring (36) from nozzle liner assembly (32). Discard the O-ring.

27. Remove the second short spacer (7), primary turbine wheel (1), turbine wheel key (28) and long shaft spacer (5) from motor shaft (2). Discard the key.

If kit 55-70053 is being installed then discard turbine wheel and spacers.

If kit 55-70055 is being installed then discard turbine wheel.

28. Complete pressing the motor shaft (2) out of the front motor bearing (4).

If kit 55-70053 or 55-70054 is being installed then discard motor shaft.

29. Using a 5/32“ Allen wrench remove the four bolts retaining the nozzle (15) to the nozzle liner assembly (32) and remove the nozzle. Discard the screws.

30. Remove nozzle snap ring (24) from nozzle liner assembly (32). Discard snap ring.

31. Press out the motor bearing (4) and motor shaft seal (17). Discard both.

32. Press out the motor bearing (4) and remove the bearing spring (22) from the stator housing set aside earlier. Discard both.

This completes the disassembly of the turbine starter.

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3.6 Starter Assembly (Refer to exploded view in addendum)

3.6.1 Re-assembly

1. It is important to read through steps 1-6 below before beginning the rebuilding process, because the motor shaft seal has a time constraint on its installation time once remove from the shipping rod.
2. Gather the following parts for the first part of the turbine build-up: motor shaft (2), motor shaft seal (17), motor bearing (4), and nozzle snap ring (24).
3. Grease the motor shaft seal (17) lip and slide the seal onto tool F-550000 with the seal lip facing the tool, then press the motor shaft seal into the nozzle liner assembly (32).

   Note: This tool is designed to insert this seal by pressing only on the outside casing to avoid distorting and damaging the seal. This seal shrinks to fit the shaft and so from the point the seal has been removed from the shipping rod the motor shaft must be pressed into place within 15 minutes.
4. Using the other end of the same tool F-550000 press the motor bearing (4) into the nozzle liner assembly (32).

   Note: This tool is designed to apply the press forces to the outer race of the bearing to avoid damaging this bearing during this press operation. These motor bearings operate at very high speeds and applying stresses to these bearings improperly will shorten the life of the bearings.
5. Install the nozzle snap ring (24).
6. Using tool F-550008 to support the motor bearing on the inner race from the motor side, press in the motor shaft (2) from the drive side of the nozzle liner assembly (32) to its shoulder.

   Note: This tool is designed to support the inner race of the bearing to avoid damaging this bearing during this press operation. These motor bearings operate at very high speeds and applying stresses to these bearings improperly will shorten the life of the bearings.
7. Install the nozzle (15) and secure with four 10-32 x ¾" screws (21). Torque screws to 83-89 in-lbs.
8. Slide the long spacer (5) (new if installing kit 55-70053) onto the motor shaft (2) (new if installing kit 55-70053 or 55-70054).

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9. Install the primary turbine wheel key (28) onto the motor shaft (2).
10. Slide the primary turbine wheel (1) (new if installing kit 55-70053 or 55-70055) with the three machined holes near the hub of the wheel facing up (towards the exhaust end of the turbine) so as to be visible while installing the wheel for RH starters and down (towards the drive end of the turbine) for LH starters onto the primary turbine wheel key (28) and motor shaft (2). The primary turbine wheel can be distinguished from the secondary turbine wheel by the shape and number of the turbine vanes. There are 33 primary turbine wheel vanes compared to 37 secondary turbine wheel vanes and they are thicker.

    Note: Failure to orient the turbine wheel properly will result in low performance of the turbine.
11. Slide the short spacer (7) (new if installing kit 55-70053) onto the motor shaft (2).
12. Place new O-ring (36) into groove for it in nozzle liner assembly (32).
13. Install the stator housing (31) onto the nozzle liner assembly (32). Be sure to align the marks made in step one of the disassembly to ensure correct alignment of all housings.
14. Clean the inside bore of the bearing pocket on stator housing (31) using Loctite cleaner 7471. Allow to dry and apply Loctite 641 to the inner race in preparation for rear motor bearing (4) installation.
15. Install the bearing spring (22) into the bearing pocket with the tangs pointing upward or towards the exhaust of the turbine.
16. Clean the outer race of motor bearing (4) using Loctite 7471, allow to dry. Using tool F-550006 placed under motor shaft (2) to prevent shaft movement during pressing operation, press the rear motor bearing onto the motor shaft and into bearing pocket in stator housing (31) till bottoms out on short shaft spacer (7).

    Note: The above tools are used to avoid damaging the motor bearings during this press operation it is important to press only on the inner race of the rear bearing while supporting the gear end of the motor shaft. Failure to prevent movement of the motor shaft can result in stress being transferred to the front motor bearing. These motor bearings operate at very high speeds and applying stresses to these bearings improperly will shorten the life of the bearings.
17. Slide short shaft spacer (7) (new if installing kit 55-70053) onto motor shaft (2).
18. Install secondary turbine wheel key (28) onto the motor shaft (2).

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19. Slide the secondary turbine wheel (6) (new if installing kit 55-70053 or 55-70056) with the three machined holes near the hub of the wheel facing up (towards the exhaust end of the turbine) so as to be visible while installing the wheel for RH starters and down (towards the drive end of the turbine) for LH starters onto the secondary turbine wheel key (28) and motor shaft (2).

Note: Failure to orient the turbine wheel properly will result in low performance of the turbine.

Note: If force is needed to install the wheel be sure that the motor shaft is supported with tool F-550006 to prevent stresses from being applied to the motor bearings. These motor bearings operate at very high speeds and applying stresses to these bearings improperly will shorten the life of the bearings.

20. Install motor washer (20) and motor shaft screw (21). While holding secondary turbine wheel (6) torque the screw to 83-89 in-lbs.

Note: it is important to perform this next step with the turbine in the vertical position with the nozzle liner assembly (32) clamped securely in a vice with padded or non-marring jaws. This will prevent any side loading being applied to the bearings while performing this step.

21. Install exhaust screen (44) or exhaust adapter and its associated O-ring (not shown) if so equipped. Align alignment marks made earlier between the nozzle liner assembly (32) and the stator housing (31) and exhaust adapter if equipped and secure using six ¼" -28 x 2.75" (41) exhaust screws and internal tooth washers (26). Lightly snug all the screws before torqueing them to the final torque. Use a crisscross pattern to torque screws to final torque of 113 - 119 in. lbs.

This completes the motor assembly portion on the rebuilding process and this assembly can be set aside.

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The next steps involve the re-assembly of the drive end of the turbine starter.

1. If installing arbor shaft kit 55-70059 or if desiring to install new arbor shaft keys (30) keys in arbor shaft / planetary gear housing assembly then proceed as follows otherwise skip to step 5.
2. Press out arbor shaft (10) from planetary gear housing (9) and remove and discard arbor shaft keys (30).

   If installing kit 55-70059 then discard the arbor shaft also.
3. Clean arbor shaft (10) (new if installing kit 55-70059) and planetary gear housing (9) with Loctite cleaner 7471. Apply Loctite 641 to arbor shaft keys (30), arbor shaft and planetary gear housing.
4. While supporting planetary gear housing (9) with tool F-550012 and tool F-550006 to prevent collapse of gear housing press arbor shaft (10) with keys (30) into planetary gear housing up to hard stop against tool F-550012. (shaft is even with bottom of shaft bore)

   Note: This is a very robust press operation and it is imperative the shaft remain straight while pressing into the gear housing. Check bottom of shaft in gear housing for any ruptures of the gear housing edges and remove any burrs from housing if present to prevent chips from entering gear set.
5. Install new planetary gear needle bearings (14) into the planetary gears (8) (new if installing kit 55-70054) using tool F-550007. Then grease needle bearings.

   Note: Be sure to press from the lettered side of the bearing only. This side of the bearing is designed to support the pressing operation without distorting the bearing shell and causing damage to the bearing.
6. If installing kit 55-70054, install the three idler shaft spring pins (12) into the three planetary idler shafts (11) until they are fully seated.
7. Insert the planetary idler shaft (11) snap ring end first into the planet gear housing (9) from the arbor shaft (10) end.
8. Grease both sides of a glide washer (3) and slide it onto the planetary idler shaft (11).
9. Slide a planetary gear (8) into place and push the planet shaft (11) into the gear.
10. Grease both sides of another glide washer (3) and slide it between planetary gear (8) and planetary gear housing (9) and onto planetary idler shaft (11).
11. Push the planetary idler shaft (11) the rest of the way through the glide washer (3) and planetary gear housing (9). Rotate the shaft until the spring pin (12) in the shaft drops into the groove on the planetary gear housing.

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12. Install snap ring (13) onto the planetary idler shaft (11) to secure shaft.

13. Repeat steps 7 – 12 for the two remaining planetary gears.

14. Using tool F-550011 install new drive seal (23) into the spool (38) with the seal lip pointing toward the planetary gear assembly side of the spool.

15. Lubricate the drive seal (23) lip with grease.

16. Clean both the drive bearing pocket of spool (38) and outer surface of new drive bearing (18) with Loctite 7471 and allow to dry.

17. Apply Loctite #641 to the outer surface of the spool bearing (18) and the bearing pocket in the spool (38) and using tool F-550011, press the drive bearing into the spool.

Note: This tool is designed to press on the outer drive bearing race to prevent damage to the bearing.

18. Install bearing retention snap ring (35) into spool (38).

19. Clean the portion of the arbor shaft (10) that will be pressed into the spool bearing (18) with Loctite 7471 and allow to dry.

20. Apply Loctite 641 to the arbor shaft (10) and slide the spool assembly onto the arbor shaft. Using tool F-550012, F-550006, and F-550003 press the spool assembly until bearing is fully seated on the shaft.

Note: The tools used here are designed to direct the pressing force to the inner race of the drive bearing (18) to prevent damage to the bearing while keeping it centered on the shaft preventing damage to the drive seal (23) and supporting the planetary carrier assembly without putting pressure on the idler gear snap rings.

21. Clean the inner race of the drive spacer (29) with Loctite primer 7471 allow to dry.

22. Apply Loctite #641 to the inner bore of the drive spacer (29) and slide drive spacer onto the arbor shaft (10). Using tool F-550012, F-550006, and F-550003 press the drive spacer onto the arbor shaft until fully seated against the bearing inner race.

23. Grease the planet gears (8) by packing the gear teeth so as to fill them with grease. Gears should appear as solid cylinders when complete.

24. Install an O-ring (25) on the spool (38) and nozzle liner (32). Use a light coat of grease to hold them in place if needed.

25. Line up the alignment marks of the annulus gear (40) and the nozzle liner assembly (32) and install the annulus gear onto the nozzle liner.

26. Grease the annulus gear (40) and the motor shaft (2) gear teeth with grease by filling the teeth with grease.

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27. Pack the motor shaft seal cavity located where the motor shaft comes through the nozzle liner assembly (32) with grease.

28. Line up the alignment marks on the spool (38), annulus gear (40), and nozzle liner assembly (32) made in step 1 and insert two 2.25"- ¼"-28 screws (39) and internal tooth washers (26) 180˚ apart through the spool and annulus gear liner assembly and start them into the nozzle liner assembly as guide pins.

29. While slightly rotating back and forth the arbor shaft (10) to mesh the planetary gear assembly with the motor shaft (2) and annulus gear (40) push down to fully seat the spool to the annulus gear. Continue this until the spool assembly is fully mated with the nozzle liner assembly (32).

30. Install the remaining four screws (39) and internal tooth washers (26) torque all to 113 - 119 in. lbs.

Note: Use a crisscross pattern when tightening the screws and check to make sure the O-rings are not damaged during the process.

31. Grease the needle bearing (37) and press the bearing into the drive housing (16) from the top of the drive housing on top of the shaft seal until the bearing is flush with the bottom of the bearing bore. When complete bearing may be protruding slightly from the top of the drive housing.

32. Install spring (51) into drive housing (16).

33. Inspect drive (19) replace if necessary. If replacing drive (19) then press new drive into piston (45) and secure with drive snap ring (46) otherwise just install new drive snap ring.

34. Install two O-rings (47) onto piston (45).

35. Lubricate O-rings (47) and drive housing (16) piston bore and install drive piston assembly into drive housing.

36. Install O-rings (47) and (48) onto cylinder (49) and lightly lubricate.

37. Slide cylinder (49) onto piston (45).

38. Line up two retention screw holes on cylinder (49) with mating drive housing (16) threaded holes and press cylinder into drive housing. This assembly is now under spring pressure from the return spring (51) so must be held in place while the two retaining screws (50) are started in. Torque to 58-62 in-lbs

39. Grease the arbor shaft (10) lightly.

40. Line up the alignment marks made earlier between drive housing (16) and spool (38) and install the drive housing assembly.

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41. Secure drive housing (16) to the spool (38) with eleven ¼"-28 screws (27) and internal tooth washers (26) and torque to 113-119 in-lbs.

42. Line up the alignment marks made earlier between the flange (52) and the drive housing (16) and secure with six ¼" -28 screws (27). Torque to 113-119 in-lbs.

43. Perform a simple check of the overall turbine starter by using a 5/32" Allen wrench to rotate the turbine through nine complete revolutions from the rear turbine wheel retention screw (21) to verify smooth operation. If a problem is detected separate the turbine motor from the spool to determine whether the problem is with the motor or the gear train, troubleshoot and resolve. Contact factory if unable to resolve problem.

This completes the reassembly of the PRQ turbine.

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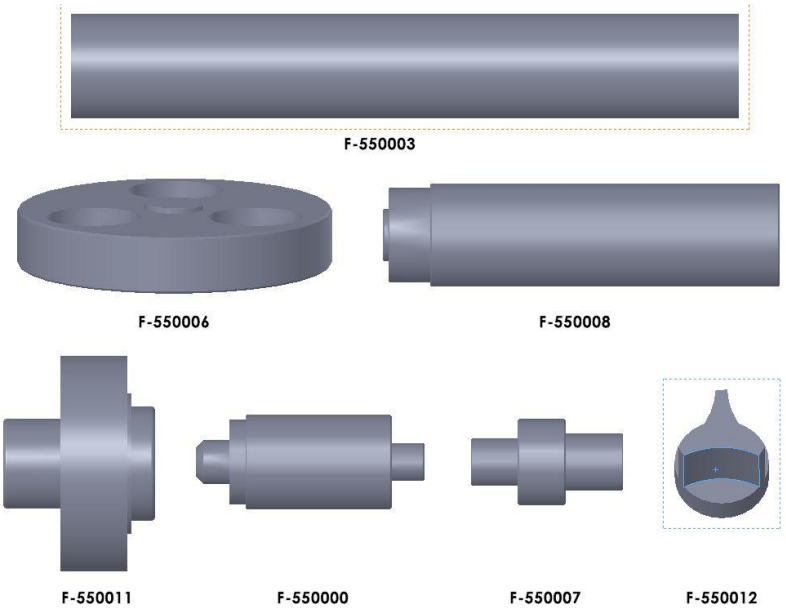
Special Tools



4.1. Warranty.

Pow-R-Quik provides a limited warranty on the products it manufactures and sells under the company name against the failure to perform properly within certain limits of time, application, performance, installation, abuse, and alteration because of a defect in material and/or workmanship.

Pow-R-Quik's standard product Warranty is available on the company's website (https://powrquik.com/pow-r-quik warranty/) and on request.

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Email: sales@powrquik.com

Website: https://powrquik.com/

Always check our website for the latest info:

Product Webpage:
https://powrquik.com/turbine-starters/prq-200-series/

User Manual:
https://powrquik.com/prq-200p-user-manual/

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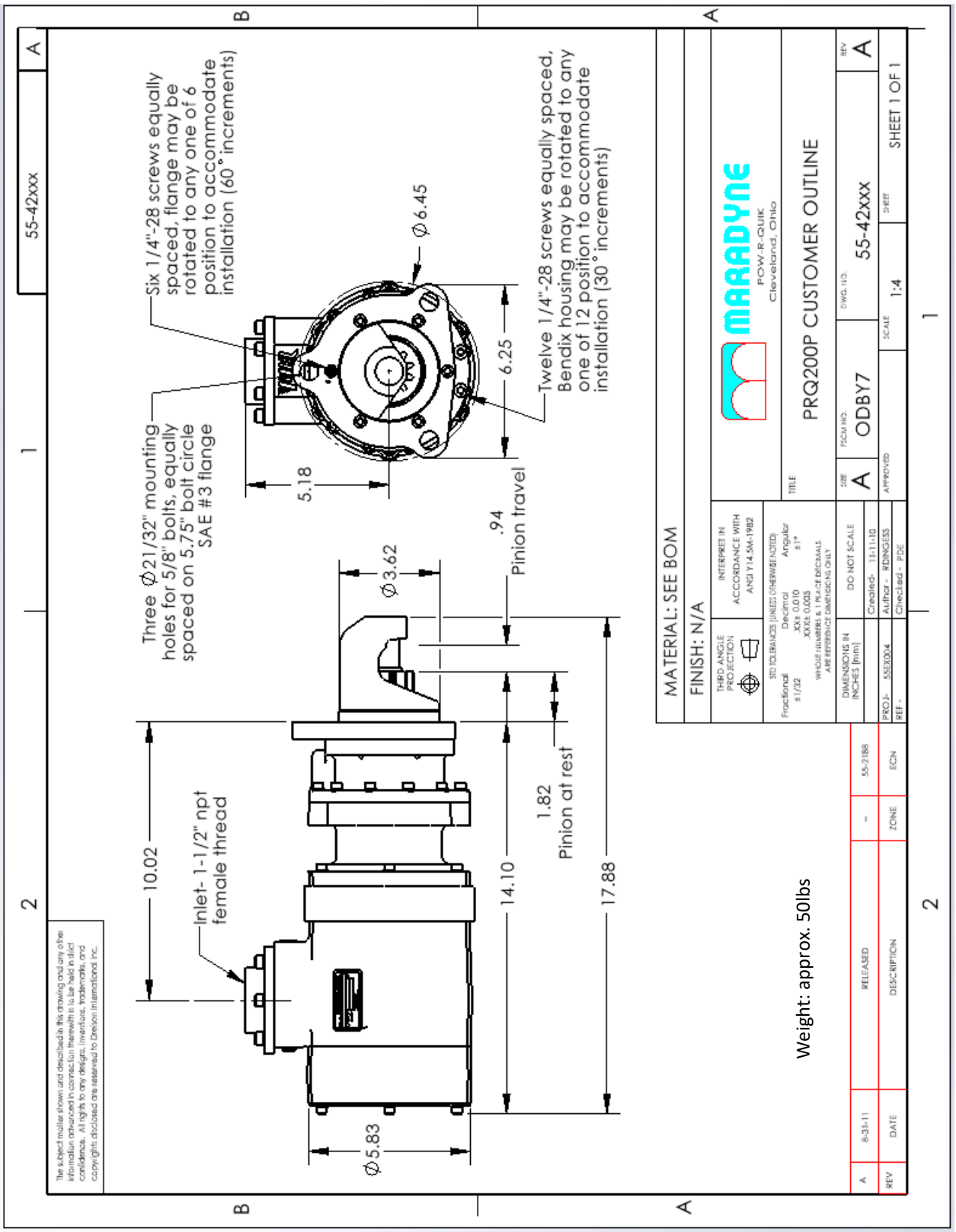
ANNEX 1 (1 of 2) - PRQ 200, Dimensional Drawing with Screen Exhaust



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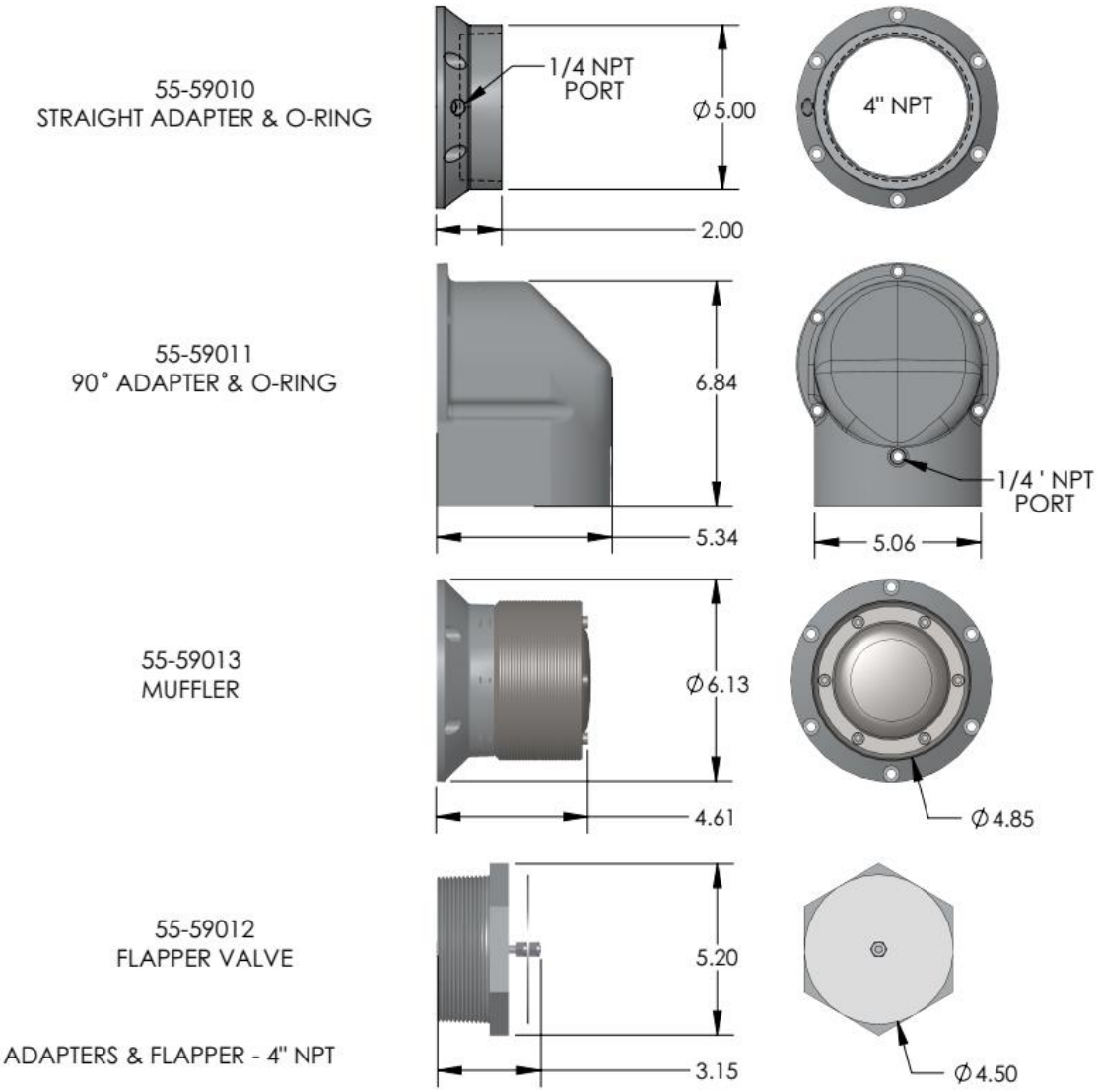
ANNEX 1 (2 of 2) - PRQ 200p, Exhaust Adapters and Muffler - Options



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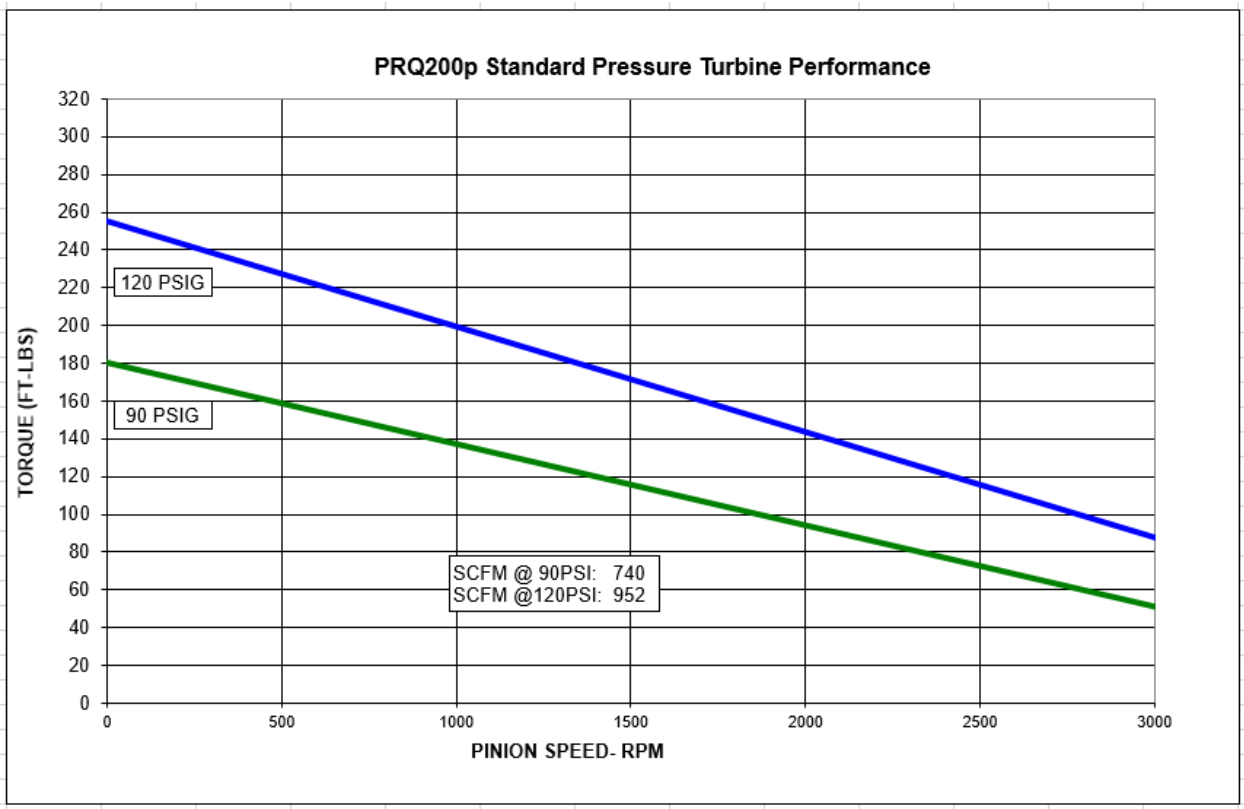
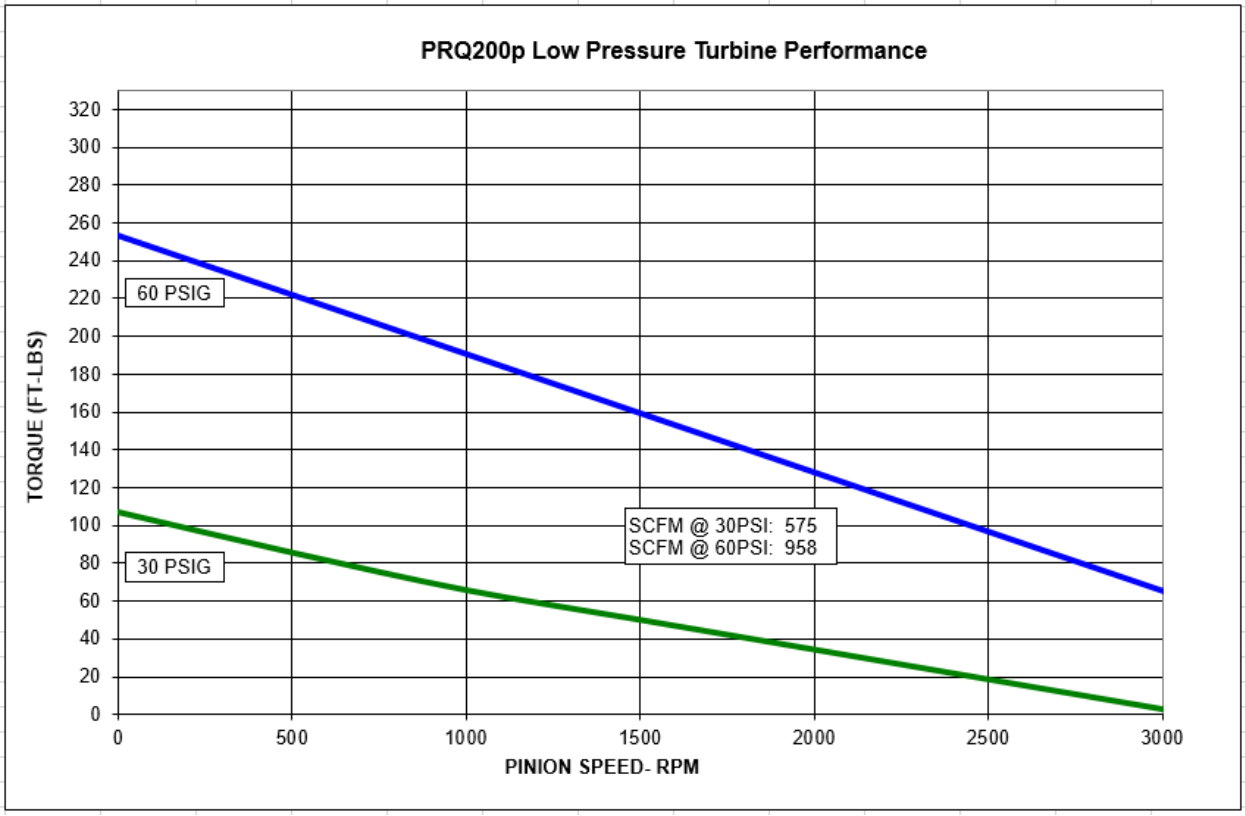
ANNEX 2 - PRQ200p, Performance Curves





MARADYNE Corporation
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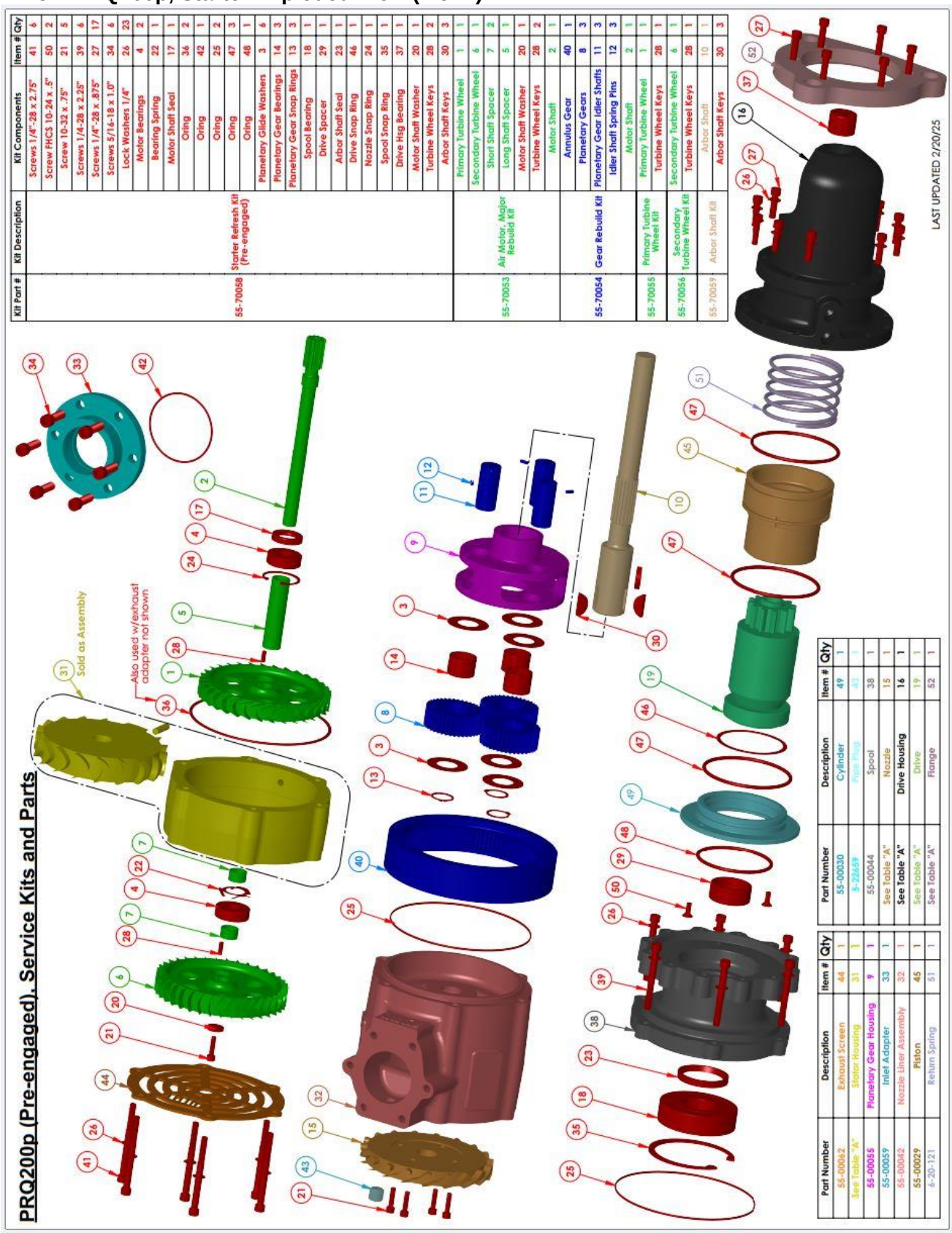
POW-R-QUIK
ENGINE STARTING SYSTEMS

ANNEX 3 – PRQ200p, Starter Exploded View (1 of 2)



Kit Part #	Kit Description	Kit Components	Item #	Qty
55-70058	Starter Refresh Kit (Pre-engaged)	Screws 1/4"-28 x 2.75"	41	6
		Screw FHCS 10-24 x .5"	50	2
		Screw 10-32 x .75"	21	5
		Screws 1/4-28 x 2.25"	39	6
		Screws 1/4"-28 x .875"	27	17
		Screws 5/16-18 x 1.0"	34	6
		Lock Washers 1/4"	26	23
		Motor Bearings	4	2
		Bearing Spring	22	1
		Motor Shaft Seal	17	1
		Oring	36	2
		Oring	42	1
		Oring	25	2
		Oring	47	3
		Oring	48	1
		Planetary Glide Washers	3	6
		Planetary Gear Bearings	14	3
		Planetary Gear Snap Rings	13	3
		Spool Bearing	18	1
		Drive Spacer	29	1
		Arbor Shaft Seal	23	1
		Drive Snap Ring	46	1
		Nozzle Snap Ring	24	1
		Spool Snap Ring	35	1
		Drive Hsg Bearing	37	1
		Motor Shaft Washer	20	1
		Turbine Wheel Keys	28	2
		Arbor Shaft Keys	30	3
55-70053	Air Motor, Major Rebuild Kit	Primary Turbine Wheel	1	1
		Secondary Turbine Wheel	6	1
		Short Shaft Spacer	7	2
		Long Shaft Spacer	5	1
		Motor Shaft Washer	20	1
		Turbine Wheel Keys	28	2
		Motor Shaft	2	1
55-70054	Gear Rebuild Kit	Annulus Gear	40	1
		Planetary Gears	8	3
		Planetary Gear Idler Shafts	11	3
		Idler Shaft Spring Pins	12	3
		Motor Shaft	2	1
55-70055	Primary Turbine Wheel Kit	Primary Turbine Wheel	1	1
		Turbine Wheel Keys	28	1
55-70056	Secondary Turbine Wheel Kit	Secondary Turbine Wheel	6	1
		Turbine Wheel Keys	28	1
55-70059	Arbor Shaft Kit	Arbor Shaft	10	1
		Arbor Shaft Keys	30	3

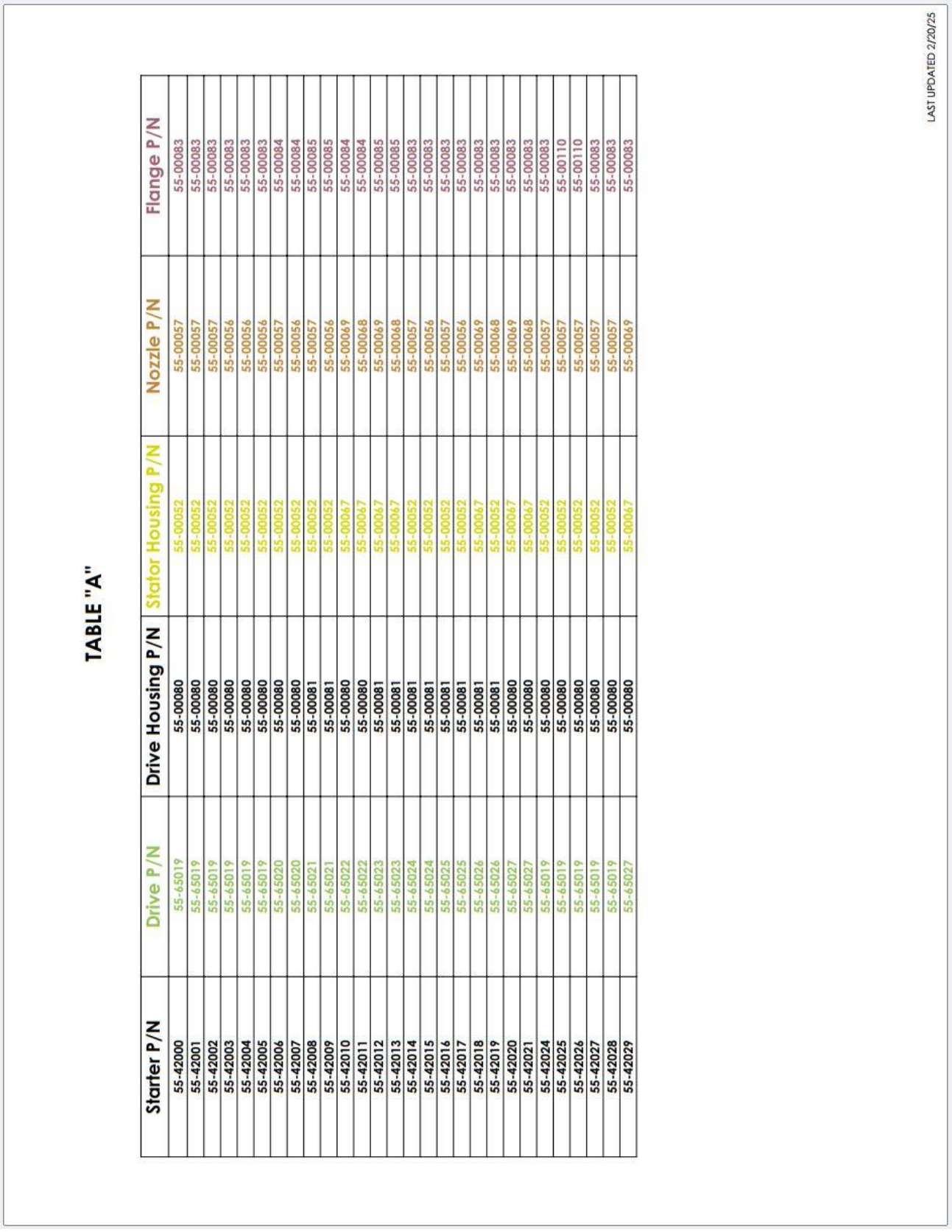
Part Number	Description	Item #	Qty
55-00042	Exhaust Screen	44	1
See Table "A"	Stator Housing	31	1
55-00055	Planetary Gear Housing	9	1
55-00059	Inlet Adapter	33	1
55-00042	Nozzle Liner Assembly	32	1
55-00029	Piston	45	1
6-20-121	Return Spring	51	1

Part Number	Description	Item #	Qty
55-00030	Cylinder	49	1
5-22459	Pipe Plug	43	1
55-00044	Spool	38	1
See Table "A"	Nozzle	15	1
See Table "A"	Drive Housing	16	1
See Table "A"	Drive	19	1
See Table "A"	Flange	52	1

Form 6-55-090

POW-R-QUIK
ENGINE STARTING SYSTEMS

ANNEX 3 – PRQ200p, Starter Exploded View (2 of 2)



LAST UPDATED 2/20/25

TABLE "A"

Starter P/N	Drive P/N	Drive Housing P/N	Stator Housing P/N	Nozzle P/N	Flange P/N
55-42000	55-65019	55-00080	55-00052	55-00057	55-00083
55-42001	55-65019	55-00080	55-00052	55-00057	55-00083
55-42002	55-65019	55-00080	55-00052	55-00057	55-00083
55-42003	55-65019	55-00080	55-00052	55-00056	55-00083
55-42004	55-65019	55-00080	55-00052	55-00056	55-00083
55-42005	55-65019	55-00080	55-00052	55-00056	55-00083
55-42006	55-65020	55-00080	55-00052	55-00057	55-00084
55-42007	55-65020	55-00080	55-00052	55-00056	55-00084
55-42008	55-65021	55-00081	55-00052	55-00057	55-00085
55-42009	55-65021	55-00081	55-00052	55-00056	55-00085
55-42010	55-65022	55-00080	55-00047	55-00069	55-00084
55-42011	55-65022	55-00080	55-00047	55-00068	55-00084
55-42012	55-65023	55-00081	55-00067	55-00069	55-00085
55-42013	55-65023	55-00081	55-00067	55-00068	55-00085
55-42014	55-65024	55-00081	55-00052	55-00057	55-00083
55-42015	55-65024	55-00081	55-00052	55-00056	55-00083
55-42016	55-65025	55-00081	55-00052	55-00057	55-00083
55-42017	55-65025	55-00081	55-00052	55-00056	55-00083
55-42018	55-65026	55-00081	55-00047	55-00069	55-00083
55-42019	55-65026	55-00081	55-00052	55-00068	55-00083
55-42020	55-65027	55-00080	55-00047	55-00069	55-00083
55-42021	55-65027	55-00080	55-00047	55-00068	55-00083
55-42024	55-65019	55-00080	55-00052	55-00057	55-00083
55-42025	55-65019	55-00080	55-00052	55-00057	55-00110
55-42026	55-65019	55-00080	55-00052	55-00057	55-00110
55-42027	55-65019	55-00080	55-00052	55-00057	55-00083
55-42028	55-65019	55-00080	55-00052	55-00057	55-00083
55-42029	55-65027	55-00080	55-00047	55-00069	55-00083

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