ATS 63 & 64 - FOR DIESEL APPLICATIONS
3 - 8 LITRES (AVAILABLE WITH ATEX CERTIFICATION

ATS64 OVERHUNG MANUAL

ATS64 SERVICE KIT

ATS63 PRE-ENGAGED MANUAL

ATS63 INERTIA MANUAL

ATS63 SERVICE KIT

The ATS63 & 64 series is the first of our range with band clamps offering 360 Degree rotation of the inlet port, ensuring ease of installation.

Key Features at 100 psi starting pressure			
Weight	24 lb (10.9) kg	Power	10 hp (7.4 kW)
Torque	50 ft lb (67.8 Nm)	Comsumption	4.7 scfs (132 l/s)
Speed	4500 RPM	Noise Level	100dBa

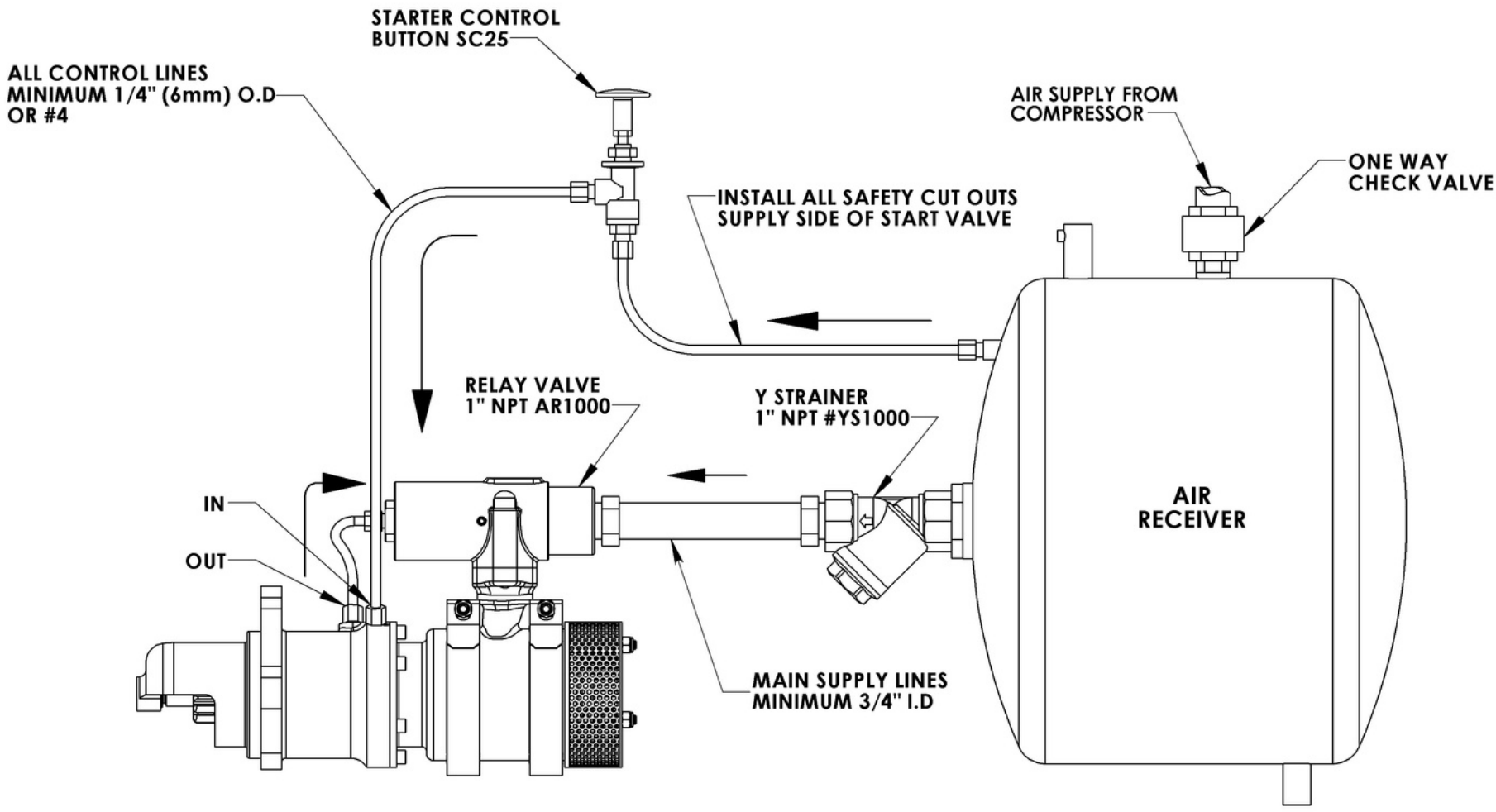
By ingenious design, benifits of Austart turbine starters include:

- No lubrication required
- Higher cranking torque
- Extended cranking periods
- Faster, more reliable starting
- 3 stage self governed turbine wheel
- Corrosion resistant coatings
- 360 degree indexation of the inlet port
- Fewer moving parts
- Longer service intervals
- Immunity to dusty environments
- Immunity to extremely high or low temperatures
- No need for special tools when servicing
- No batteries are required

Air starters come in many configurations for a variety of applications and fitment objectives.

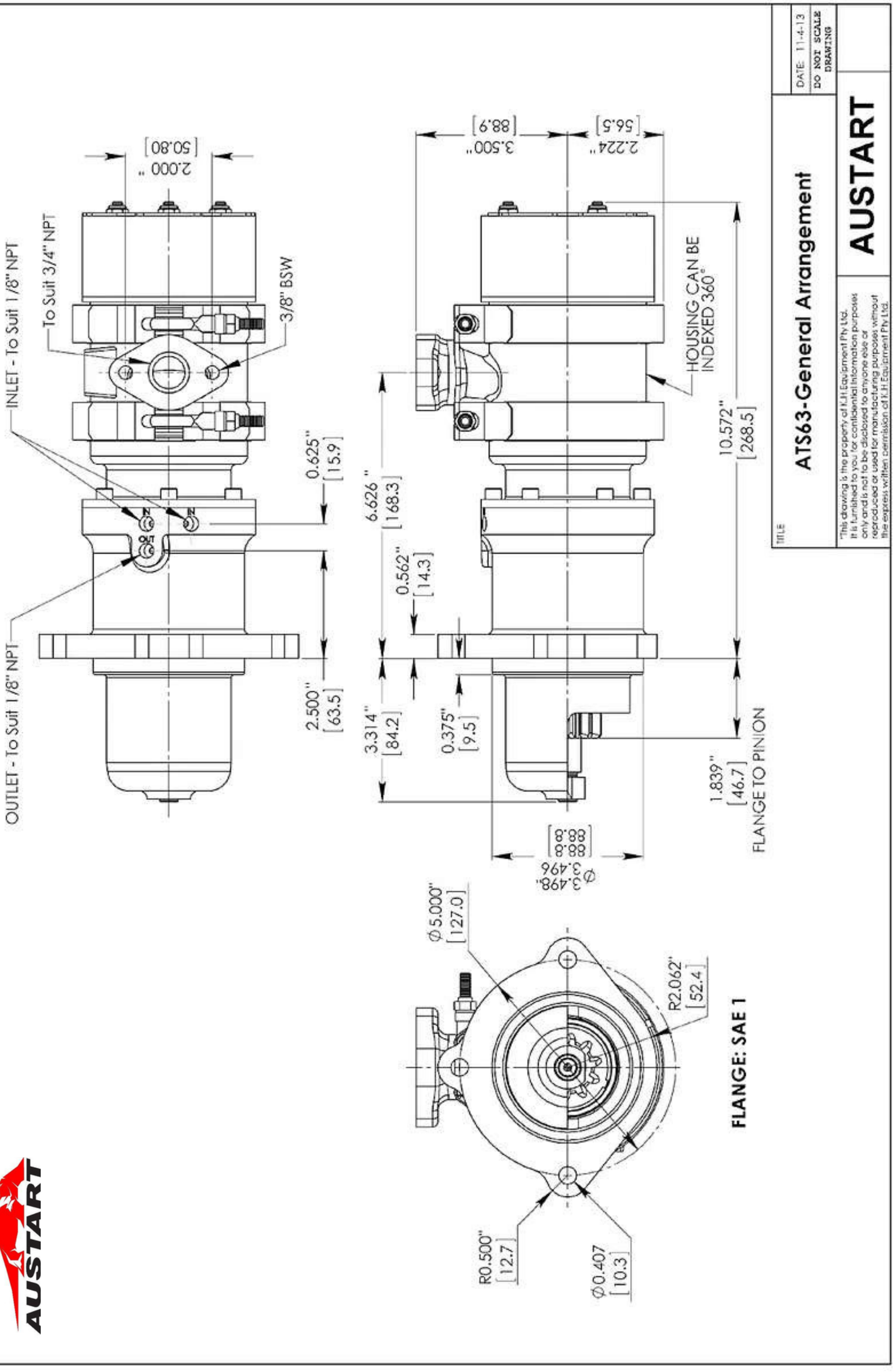
- Nosecone or overhung pinions
- Berrylium Copper Bronze (BCB) non sparking pinions available
- Clockwise or Counter clockwise rotation
- Pre-engaged or inertia engagement options
- Z shaped models available for limited space applications
- Mounting flange and pinion options available to suit most engines

INSTALLATION SCHEMATIC



TITLE: ATS63-2 & AR1000-Schematic	SCALE: 1:3	
	DATE: 27-5-16	
	DO NOT SCALE DRAWING	
"This drawing is the property of K.H.Equipment Pty Ltd. It is furnished to you for confidential information purposes only and is not to be disclosed to anyone else or reproduced or used for manufacturing purposes without the express written permission of K.H.Equipment Pty Ltd.	AUSTART	A3

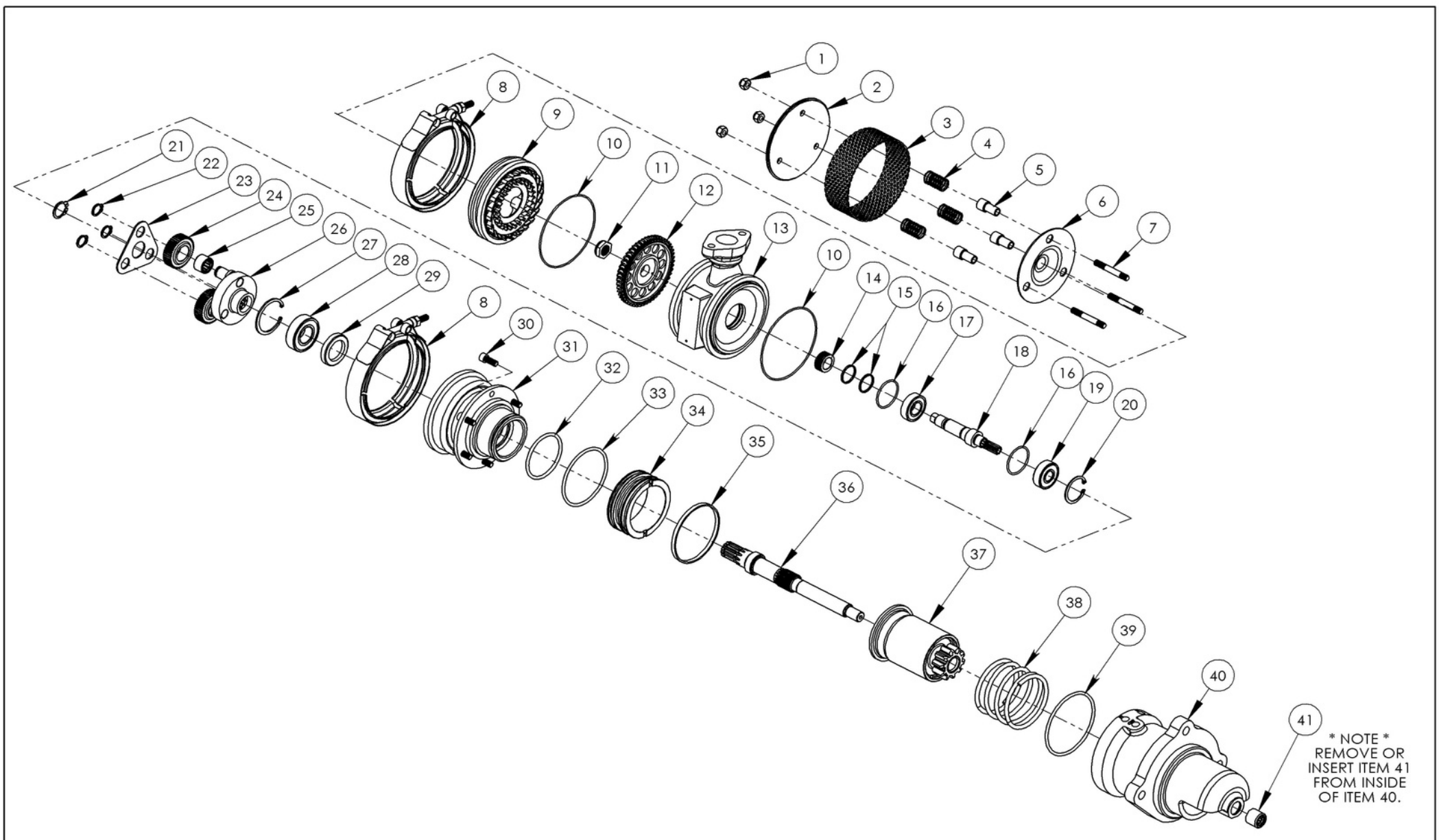
GENERAL ARRANGEMENT



6340-900 AUSTART SERVICE KIT

Item No.	Part ID	Description	Qty
17	6309-000	O'ring	2
18	6310-000	Bearing	1
20	6004-000	Bearing	1
21	6308-000	Circlip	1
26	6315-000	Bearing	3
28	6619-000	Circlip	1
22	6617-000	Circlip	1
29	6012-000	Bearing	1
30	6621-000	Seal	1
33	6730-000	O'ring	1
34	6732-000	O'ring	1
36	6733-500	Seal	1
40	6731-000	O'ring	1
42	6022-000	Bearing	1
11	6323-000	O'ring	2

EXPLODED VIEW



TITLE

ATS63-2-Exploded View

SCALE: 1:20

DATE: 2-3-16

DO NOT SCALE DRAWING

AUSTART

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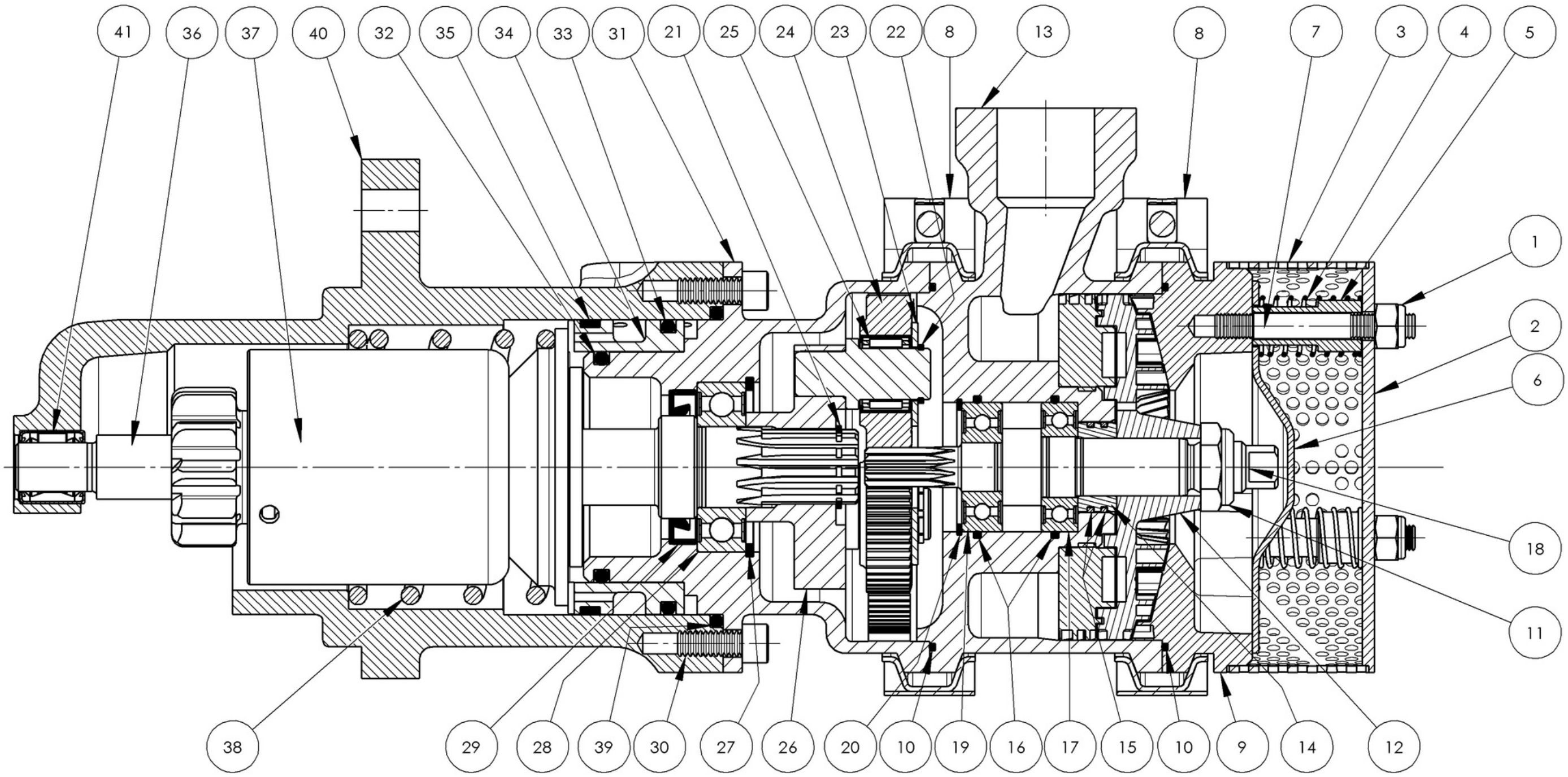

SECTION VIEW

TITLE

ATS63-2-Section View

SCALE: 1:1

DATE: 2-3-16

DO NOT SCALE DRAWING

AUSTART

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AUSTART ATS64

General Build List

ITEM	PART NO.	EXT.	DESCRIPTION		QTY	ITEM	PART NO.	EXT.	DESCRIPTION		QTY
1	3029	000	NUT		3	26	6315	000	BEARING	+	3
2	6321	100	END COVER MUFFLER		1	27	6311	900	SPIDER HUB ASSY		1
3	6320	100	OUTER SLEEVE		1	28	6619	000	CIRCLIP	+	1
4	3009	100	SPACER (0.624")		3	29	6012	000	BEARING	+	1
5	6318	100	BAFFLE PLATE		1	30	6621	000	SEAL	+	1
6	3012	100	SPACER (1.050")		3	31	6005	000	SCREW		18
7	3027	100	STUD		3	32	6317	100	GEAR ADAPTOR		1
8	6319	100	BAFFLE SLEEVE		1	33	6730	000	O' RING	+	1
9	6322	000	BAND CLAMP		2	34	6732	000	O' RING	+	1
10	6316	200	END COVER		1	35	6726	100	PISTON		1
11	6323	000	O' RING	+	2	36	6733	500	SEAL	+	1
12	6301	000	SPECIAL NUT		1	37	6750	100	DRIVE SHAFT		1
13	6314	300	TURBINE ROTOR		1	38	6760	900	DRIVE ASSY		1
14	6302	920	TURBINE HOUSING		1	39	6734	000	SPRING		1
15	6312	100	SEAL SLEEVE		1	40	6731	000	O' RING	+	1
16	6313	000	PISTON RING		2	41	6762	200	R R HOUSING		1
17	6309	000	O' RING	+	2	42	6763	xxx	FRT HOUSING		1
18	6310	000	BEARING	+	1	43	7054	000	BEARING	+	1
19	6303	100	ROTOR SHAFT		1	44	7056	000	SEAL	+	1
20	6004	000	BEARING	+	1	45	6765	xxx	PINION		1
21	6308	000	CIRCLIP	+	1	46	6758	000	SCREW		1
22	6617	000	CIRCLIP	+	1	47	6729	xxx	FLANGE		1
23	6305	000	COUNTERSUNK SCREW		3	48	xxxx	000	SCREW		10
24	6306	100	RETAINER		1						
25	6307	100	PLANET GEAR		3		6440	900	SERVICE KIT CONSIST AS MARKED +		A.R.

- XXX DENOTES OPTIONS AVAILABLE

AUSTART PRODUCT NUMBERING

STARTER MODEL | **FLANGE CODE** | **PINION CODE** | **SPECIAL FEATURES**

MODEL PREFIX CODES:

AS	AUSTART VANE STARTER
ATS	AUSTART TURBINE STARTER

AS50	Austart Air Starter
ATS53	Austart Turbine Starter
ATS54	(ATS53 OH) Austart Turbine Starter
AS55	(AS50 OH) Austart Air Starter
AS61	Austart Air Starter
ATS63	Austart Turbine Starter
ATS64	(ATS63 OH) Austart Turbine Starter
AS66	Austart Air Starter
AS67	Austart Air Starter
AS68	(AS6070) Austart Air Starter
AS69	(AS67OH) Austart Air Starter
AS70	Austart Air Starter
ATS71	Austart Turbine Starter
ATS73	Austart Turbine Starter
ATS77	Austart Turbine Starter
AS75	(AS70 OH) Austart Air Starter
AS78	(AS7080) Austart Air Starter
AS80	Austart Air Starter
ATS83	Austart Turbine Starter
ATS84	(ATS83 OH) Austart Turbine Starter
AS85	(AS80 OH) Austart Air Starter
AS90	Austart Air Starter
ATS93	Austart Turbine Starter
ATS94	(ATS93 OH) Austart Turbine Starter
AS95	(AS90 OH) Austart Air Starter
AS100	Austart Air Starter
ATS103	Austart Turbine Starter
ATS183	Austart Turbine Starter

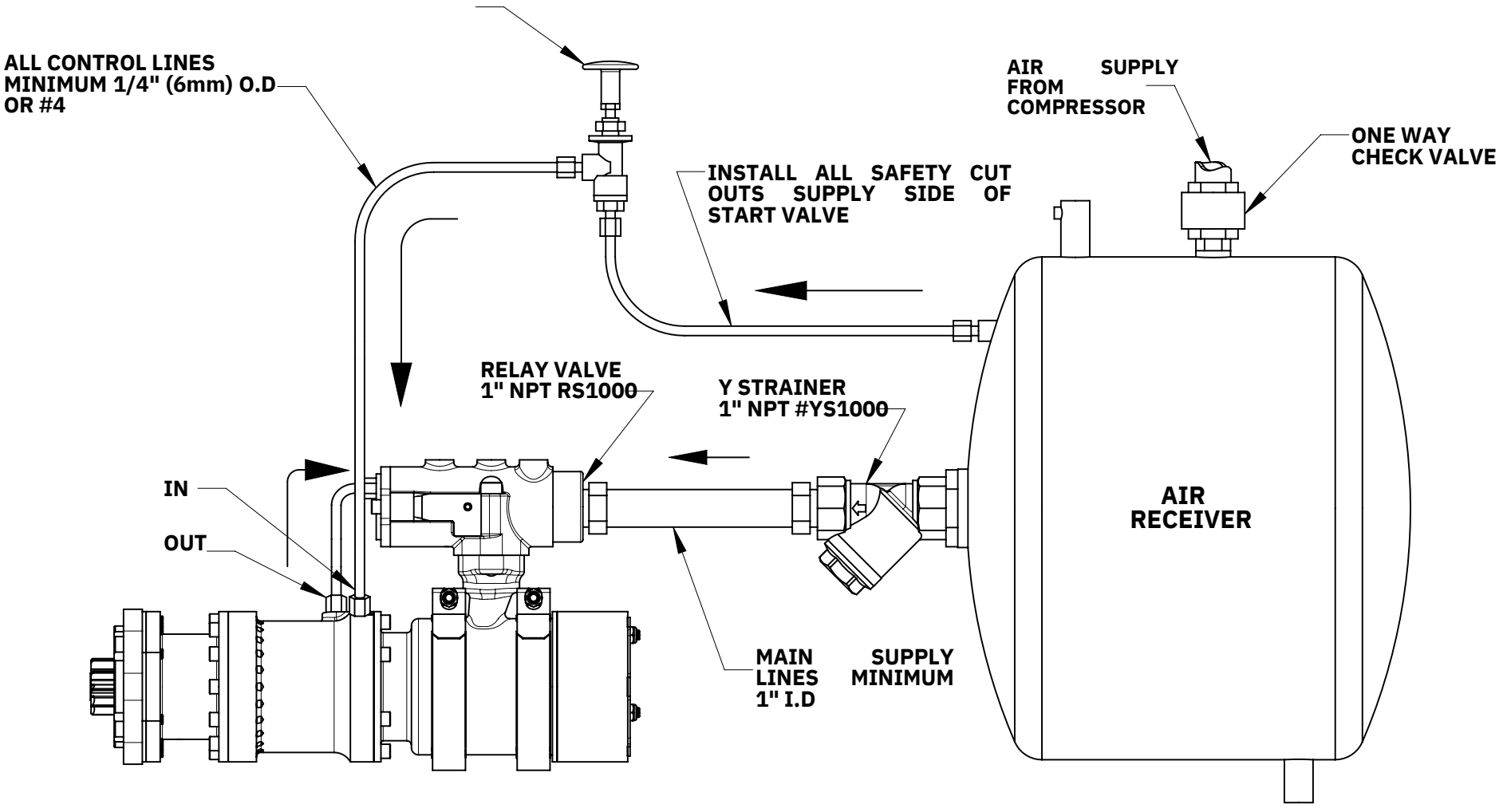
01	SAE 1
02	SAE 2
03	SAE 3
04	SAE 4
	Other options available

09	9TH 3MOD R
10	10TH 8/10 R
11	11TH 6/8 R
12	12TH 8/10 R
13	12TH 8/10 L
14	11TH 6/8 L
15	10TH 8/10 L
16	9TH 3MOD L
	Other options available

B	BCB (Beryllium Copper Bronze Pinion)
E	Threaded Exhaust 1.5"
F	Threaded Exhaust 2" Bolt On
G	Threaded Exhaust 2"
H	Highway Special
I	Inertia Drive
J	Threaded Exhaust Elbow 2"
K	Kelly Spinner Muffler
M	Mining Spec. (Cast Iron)
N	Short Nose (Inertia ATS77)
P	Motor Ports 90°
R	Reduced Muffler
S	Short Muffler
T	Threaded Exhaust 3"
U	U Configuration
V	Value Muffler (ATS77)
X	Special – Refer Factory

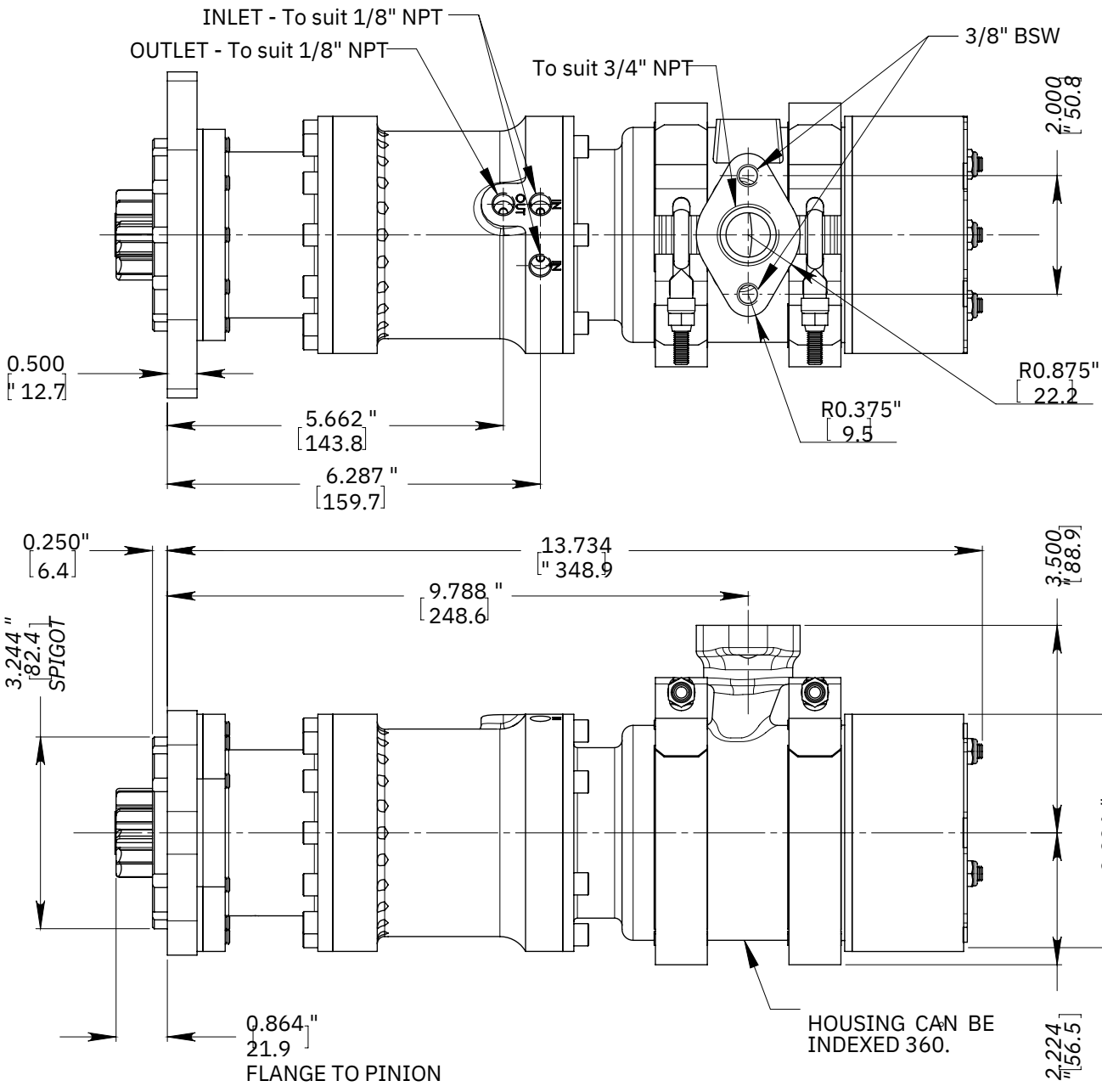
EXAMPLES OF BASIC STARTER PRODUCT NUMBERING

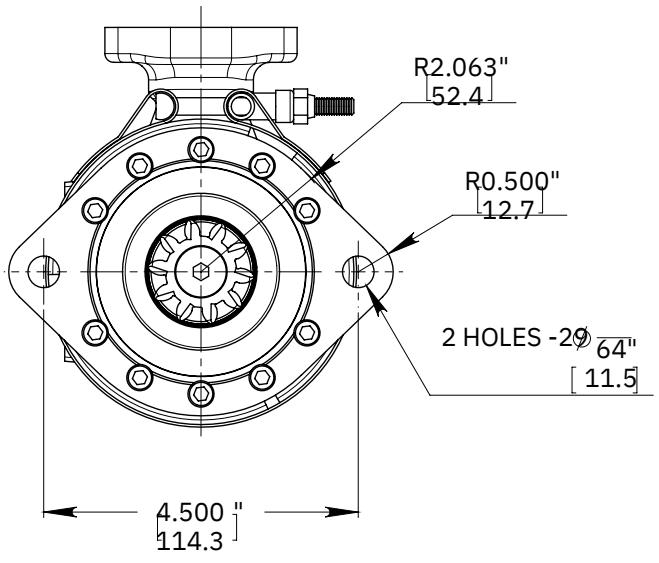
ATS63-0110M	PERKINS 1006	SAE1	10TH	MINING SPEC
ATS63-0409M	MWM D916-6	SAE4	9TH	MINING SPEC
ATS73-0311	CUMMINS N14	SAE3	11TH	
ATS73-0314	CUMMINS N14	SAE3	11TH	LH
ATS73-0311I	DETROIT 12V71	SAE3	11TH	INERTIA DRIVE
ATS73-0314I	DETROIT 12V71	SAE3	11TH	INERTIA DRIVE LH
ATS73-0312M	CATERPILLAR 3306	SAE3	12TH	MINING SPEC
ATS83-0311IT	WAUKESHA 7072	SAE3	11TH	INERTIA THREADED EXHAUST



TITLE	**ATS64 & RS1000M-Schematic**
SCALE:	1:3
DATE:	25-3-13
	DO NOT SCALE DRAWING

AUSTART A3





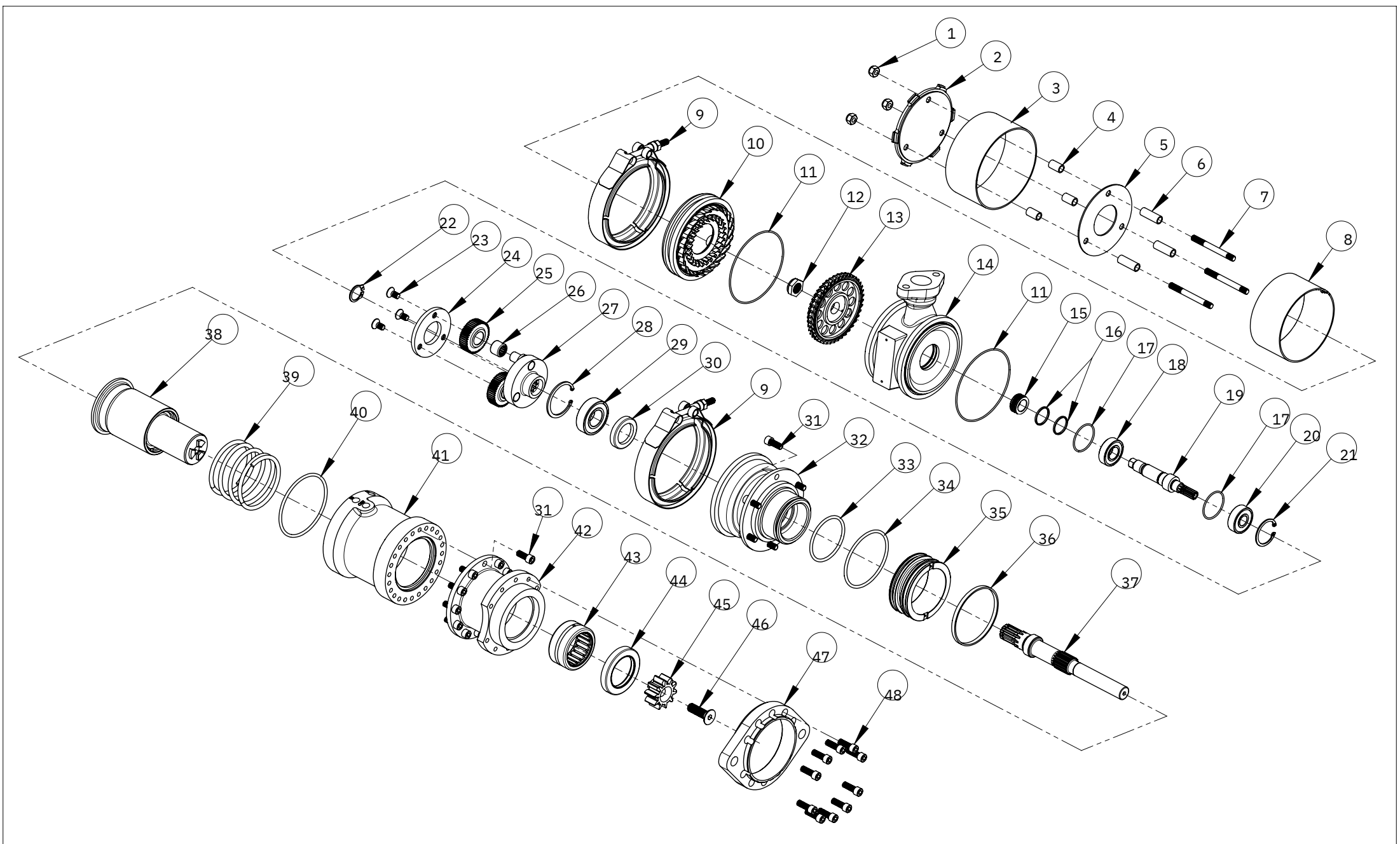
NOTE:
OTHER FLANGE AND PINION
OPTIONS AVAILABLE.

TITLE	**ATS64-General Arrangement**
SCALE:	1:2
DATE:	10-4-13
	DO NOT SCALE DRAWING

AUSTART A3

6440-900 AUSTART SERVICE KIT

Item No.	Part ID	Description	Qty
11	6323-000	O'ring	2
17	6309-000	O'ring	2
18	6310-000	Bearing	1
20	6004-000	Bearing	1
21	6308-000	Circlip	1
22	6617-000	Circlip	1
26	6315-000	Bearing	3
28	6619-000	Circlip	1
29	6012-000	Bearing	1
30	6621-000	Seal	1
33	6730-000	O'ring	1
34	6732-000	O'ring	1
36	6733-500	Seal	1
40	6731-000	O'ring	1
43	7054-000	Bearing	1
44	7056-000	Seal	1



TITLE

ATS64-Exploded View

SCALE: 1:4

DATE: 25-3-08

DO NOT SCALE DRAWING

AUSTART

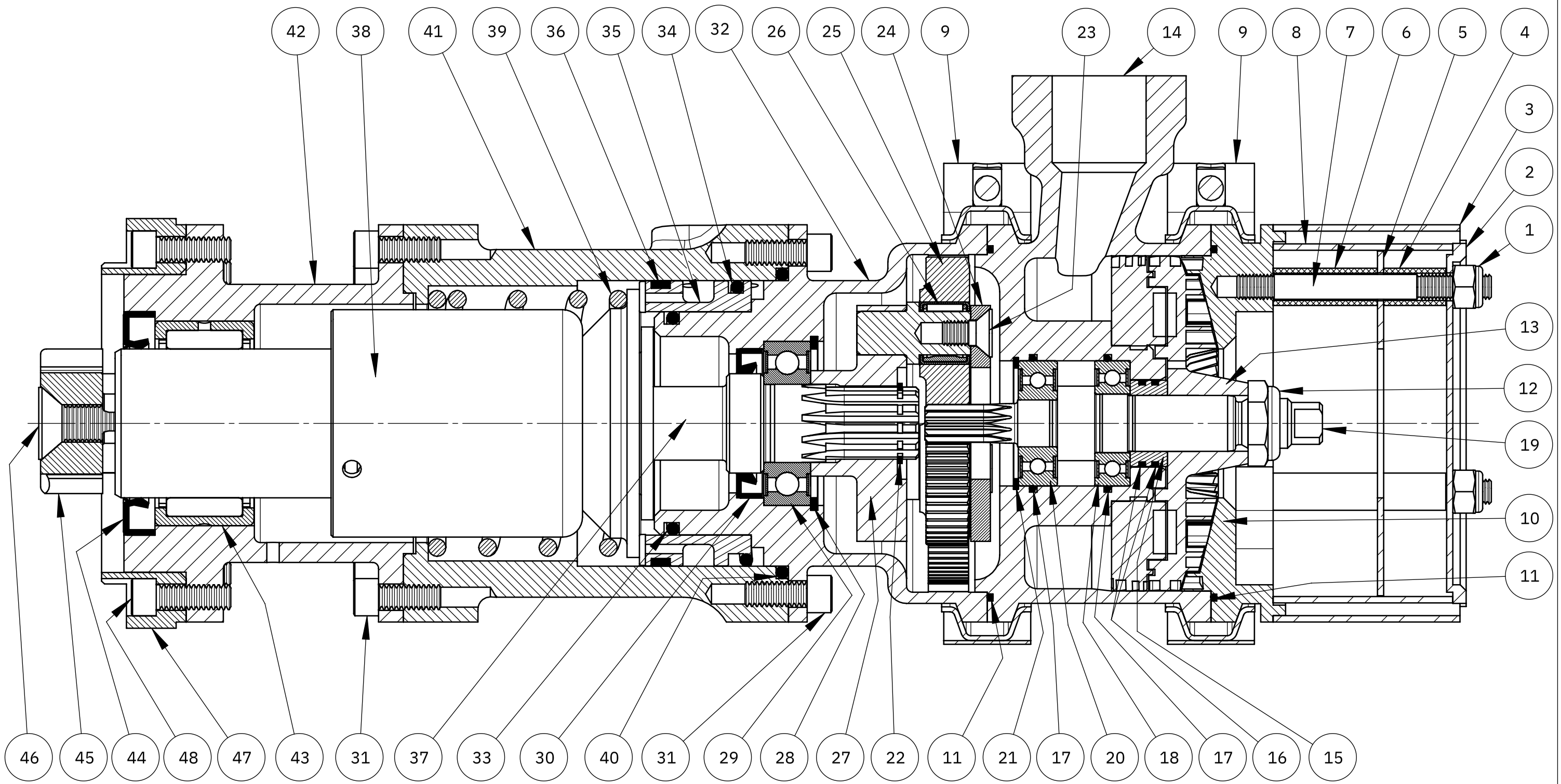
A3

AUSTART ATS64

General Build List

ITEM	PART NO.	EXT.	DESCRIPTION		QTY	ITEM	PART NO.	EXT.	DESCRIPTION		QTY
1	3029	000	NUT		3	26	6315	000	BEARING	+	3
2	6321	100	END COVER MUFFLER		1	27	6311	900	SPIDER HUB ASSY		1
3	6320	100	OUTER SLEEVE		1	28	6619	000	CIRCLIP	+	1
4	3009	100	SPACER (0.624")		3	29	6012	000	BEARING	+	1
5	6318	100	BAFFLE PLATE		1	30	6621	000	SEAL	+	1
6	3012	100	SPACER (1.050")		3	31	6005	000	SCREW		18
7	3027	100	STUD		3	32	6317	100	GEAR ADAPTOR		1
8	6319	100	BAFFLE SLEEVE		1	33	6730	000	O' RING	+	1
9	6322	000	BAND CLAMP		2	34	6732	000	O' RING	+	1
10	6316	200	END COVER		1	35	6726	100	PISTON		1
11	6323	000	O' RING	+	2	36	6733	500	SEAL	+	1
12	6301	000	SPECIAL NUT		1	37	6750	100	DRIVE SHAFT		1
13	6314	300	TURBINE ROTOR		1	38	6760	900	DRIVE ASSY		1
14	6302	920	TURBINE HOUSING		1	39	6734	000	SPRING		1
15	6312	100	SEAL SLEEVE		1	40	6731	000	O' RING	+	1
16	6313	000	PISTON RING		2	41	6762	200	R R HOUSING		1
17	6309	000	O' RING	+	2	42	6763	xxx	FRT HOUSING		1
18	6310	000	BEARING	+	1	43	7054	000	BEARING	+	1
19	6303	100	ROTOR SHAFT		1	44	7056	000	SEAL	+	1
20	6004	000	BEARING	+	1	45	6765	xxx	PINION		1
21	6308	000	CIRCLIP	+	1	46	6758	000	SCREW		1
22	6617	000	CIRCLIP	+	1	47	6729	xxx	FLANGE		1
23	6305	000	COUNTERSUNK SCREW		3	48	xxxx	000	SCREW		10
24	6306	100	RETAINER		1						
25	6307	100	PLANET GEAR		3		6440	900	SERVICE KIT CONSIST AS MARKED	+	A.R.

- XXX DENOTES OPTIONS AVAILABLE



TITLE

ATS64-Section View

SCALE: 1:1

DATE: 10-4-13

DO NOT SCALE DRAWING

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A3

MAINTENANCE

⚠ WARNING

DISASSEMBLY

Refer to the Exploded View and Cross Sectional View drawings on pages 8 &10.

Begin by holding nose housing (38) of the air starter in a vice using soft jaws.

Making sure a 1/2" NPT fitting is in the inlet port of turbine housing (10) lightly tap the boss of the inlet port with the fitting secure. The turbine housing (10) is secured onto the gear adaptor by means of left hand thread. Unscrew and separate the two sub assemblies.

The sub assemblies may now be dismantled separately. Disassembly of any of these two sub assemblies is detailed in the exploded view on page 8 and is basically in the order shown. Refer also to the following instructions:

NOSE ASSEMBLY

1. Remove six screws (29) and separate the gear adaptor (28) by gently tapping it with a soft hammer if necessary. The gear adaptor (28) should spring apart from the nose housing (38).

2. Remove spring (36), drive assembly (35) and piston (32).

3. Hold drive shaft (34) to remove the three countersunk screws (20) which may require a sharp tap to loosen them.

4. Remove retainer (21), planet gears (22) and bearings (23).

5. Support gear adaptor (28) in the vertical position, remove circlip (19) using circlip pliers and gently press out drive shaft (34) from spider hub (24) and bearing (26).

6. Remove circlip (25) using circlip pliers and press out bearing (26) and seal (27).

7. Remove nose bearing (39) from nose housing (38).

MOTOR ASSEMBLY

1. Begin by removing screws by removing screws (1), end cap (2), spacers (3), baffle sleeve (4) and outer sleeve (5).

2. Remove screws (6) from end cover (7).

3. Using a soft hammer lightly tap the side of the end cover (7) to remove from turbine housing (10).

4. Remove special nut (8) by holding rotor shaft (16) with the two flats provided in a vice.

CAUTION

Do not hold rotor shaft (16) by splined end when removing special nut (8). Damage to spline will cause premature gearbox failure.

5. Remove circlip (18) using circlip pliers and press out rotor shaft (16) through rotor (9) as an assembly.

6. Press out seal sleeve (12) and bearing (15) from turbine housing (10).

7. Press off bearing (15) from the rotor shaft (16).

REASSEMBLY

Refer to the Exploded View and Cross Sectional View drawings on pages 8 &10.

Reassembly of any of the two sub assemblies detailed in the exploded view on *page 8* is basically in the reverse order shown. Refer also to the following instructions:

NOSE ASSEMBLY

1. Begin by pressing the bearing (39) into nose housing (38) using a press with an appropriate pressing tool.

2. Drive home the seal (27) into the gear adaptor (28) until it bottoms.

CAUTION

Ensure the seal (27) is fitted the correct way ie. with the tapered leading edge engaged first. Liberally grease the exposed side of the seal (27) with lithium based grease such as Valvoline Valplex EP grease or similar.

3. Using a press drive home the bearing (26) into the gear adaptor (28) until it bottoms. Then insert shaft (34) into the bearing (26) and press home. Ensure the gear adaptor (28) and bearing (26) are well supported during this operation. Finally fit circlip (25) using circlip pliers.

4. Invert the gear adaptor (28) and restrain in the vertical position. Slip on spider hub assembly (24) onto shaft (34) and fit circlip (19) using circlip pliers.

5. Install the three planet gears (22) and gear bearings (23) onto the spider hub assembly (24).

CAUTION

Ensure planet gears (22) are installed with the boss side of the gear facing the spider hub assembly (24). Coat gear bearings with grease before assembly.

6. Fit retainer (21) to the spider hub assembly (24) and install the three countersunk screws (20).

7. Invert partial assembly again to fit o'rings (37) and (30) onto gear adaptor (28).

8. Fit o'ring (31) and wiper seal (33) onto piston (32).

9. Liberally grease piston (32), the inner portion of the gear adaptor (28) and shaft (34) where it extends, then gently slide piston (32) onto the gear adaptor without damaging o'ring (30).

10. Slide drive assembly (35) onto shaft (34) and then fit spring (36) over drive assembly (35).

11. Liberally coat the inner regions of nose housing (38) and bearing (39) with grease and assemble nose assembly over piston (32) taking care not to damage wiper seal (33). Rotate the nose assembly until the six screw holes line up with the gear adaptor (28).

12. Squeeze together gear adaptor (28) and nose assembly (38) being careful not to damage o'ring (37) then insert screws (29).

13. Liberally pack gear teeth with suitable grease such as Valvoline Valplex EP or similar.

14. The nose assembly is now ready to accept the motor assembly.

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MOTOR ASSEMBLY

1. Begin by lightly oiling the internal bore of the turbine housing (10) with hydraulic oil and fitting inner o'ring (14).

2. Evenly press home bearing (15) until it bottoms. Ensure o'ring (14) is not damaged or dislodged.

3. Install piston ring (13) onto seal sleeve (12).

4. Lightly grease the outside of the piston ring (13) on the seal sleeve (12) and push home into the turbine housing (10) until it bottoms.

5. Press bearing (15) onto rotor shaft (16) using a press and liberally grease top of bearing.

6. Install second o'ring (14) into turbine housing (10) and insert rotor shaft (16) and bearing (15) as an assembly. This should be achieved with an even push fit.

7. Insert spacer (17) (used prior to serial number 20400) and install circlip (18) with circlip pliers.

8. Fit turbine rotor (9) onto rotor shaft (16) extension. As this is an interference fit it is necessary to warm the turbine rotor (9) with a heat gun or boiling water before installing.

9. Lightly oil thread on rotor shaft (16) extension and install special nut (8). Tighten nut against the turbine rotor (9) to a torque of 20-25 ft lb. (27-34Nm.) Prevent the turbine rotor (9) from turning by holding the flats provided on the rotor shaft (16) in a vice.

CAUTION

Do not hold rotor shaft (16) by splined end when installing special nut (8) as damage can occur.

10. Install end cover (7), screw (6), baffle sleeve (4), outer sleeve (5), spacer (3), end cap (2) and screws (1).

ASSEMBLING NOSE & MOTOR ASSEMBLIES

1. Invert nose assembly and hold in a vice using jaws.

2. Apply grease to planet gears (22) and gear case (28). Apply oil to thread and o'ring (11) of motor assembly carefully line up spline of motor assembly shaft (16) with planet gears (22) on the nose assembly and screw together. Note that the motor assembly has a left hand thread.

3. Insert a 1/2" NPT fitting into the boss of the inlet port of motor assembly and tap with a soft hammer to tighten.

4. Test the operation of the drive assembly (35) by introducing air pressure at the control line inlet port. The drive assembly should move freely forward when air pressure is applied and back once the pressure has been relieved. Investigate if this movement is not smooth.

AUSTART

WARRANTY POLICY

All Austart Products and services supplied by K.H. Equipment Pty. Ltd. (herein called “the Manufacturer”) is warranted to be free from any defect in workmanship and material under conditions of normal use and service for engine starting applications for a period of 12 months from the date of purchase by the first user. A period of 6 months is warranted for all service work. Normal wear and tear is excluded from the warranty cover.

The Manufacturer will replace or repair at their works, without cost, any Austart Starter or parts found to be defective or at their discretion choose to refund the purchase price less a reasonable allowance for depreciation in exchange for the starter or part should the item prove impossible to repair or replace.

This warranty shall not apply to any Austart Starter or parts which have been altered or repaired or purchased outside the Manufacturer and its assigned agents nor to equipment or parts that have been subject to misuse including overloading, neglect, accident or damage, nor to any part or parts improperly applied or installed.

This warranty is in lieu of all other warranties and conditions statutory or otherwise expressed or implied and of all other obligations or liabilities on the Manufacturer’s part. The Manufacturer’s maximum liability is limited to the purchase price of the starter and is not liable for any consequential damage, loss or expense.

Repeat engine starting attempts must be delayed for 15 seconds to allow all Austart Starter and engine components to stop rotating to avoid damage or adverse wear of components.

AUSTART

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