TRANSWAY SYSTEMS INC.

CUSTOM BUILT. DRIVEN BY YOU.

Transway Vacuum Pump

TSI 250, 370, 500, & 1200 Models

Operation and Maintenance Manual

ATTENTION

PLEASE READ OWNERS MANUAL FULLY BEFORE OPERATING PUMP.
FAILURE TO DO SO MAY RESULT IN SEVERE PUMP DAMAGE AND MAY VOID WARRANTY.

Transway Systems Inc.

Professional Vacuum Equipment

314 Lake Ave. N. Hamilton, Ontario Canada L8E 3A2
Direct: (905) 578-1000 Toll Free: 1 (800) 263-4508
Fax: (905) 561-9176
www.transwaysystems.com

This manual is given with your pump to help operators and owners understand the working and maintenance of your newly aquired unit.

Please familiarize yourself and any operator with the contents of this booklet and keep a record of the serial number, should you need any parts or information in the future.

We at Transway Systems are committed to quality, reliability and guaranteed performance.

Model Number: _____

Serial Number: _____

Our product is guaranteed for 2 years in accordance with the warranty provisions described.

We thank you for purchasing a Transway Rotary Vane Vacuum Pump. Our quality control program has been developed to ensure this vacuum pump and its components are free from defects in materials and workmanship. With proper maintenance and operation your Transway Systems pump should give many years of trouble free use.

Please read the owners manual completely before operating your new Transway Systems pump.

NOTICE - WARRANTY CLAIM

In the event of pump failure while pump is still under warranty, pumps are to be returned to factory without dismantaling or other alterations for warranty assessment. Violation of this condition will void warranty. All shipping costs are the customer's responsibility.

PUMP WARRANTY

1. **WARRANTY POLICY-** Subject to the terms of this warranty (the "WARRANTY) , vacuum pumps (the "PRODUCT") manufactured by Transway Systems Inc are warranted to be free from defects in material and workmanship for a maximum period of two (2) years from the date of shipment to Buyer. THIS IS THE SOLE AND EXCLUSIVE PRODUCT WARRANTY GIVEN BY workmanship **TRANSWAY SYSTEMS INC** TO BUYER AND IS IN LIEU OF, AND EXCLUDES , ALL OTHER WARRANTIES, EXPRESS OR IMPLIED ARISING BY OPERATION OF LAW OR OTHERWISE, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRARNTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. COMPONENTS WHICH MAY BE SUPPLIED AS PART AN ASSEMBLY OR SPARE PART(S) AND NOT MANUFACTURED BY **TRANSWAY SYSTEMS INC** ARE LIMITED ONLY TO THE WARRANTY EXTENDED BY THE MANUFACTURER(S) OF THE COMPONENT(S).

2. **WARRANTY CLAIMS-** In the event of a defect in a PRODUCT covered by this WARRANTY, **TRANSWAY SYSTEMS INC** shall repair or replace the affected PRODUCT, or components of the PRODUCT at its sole discretion. This is the BUYERS sole and exclusive remedy. BUYER shall comply with **TRANSWAY SYSTEMS INC** WARRANTY claims Process in order to enforce this WARRANTY.

3. **WARRANTY EXCLUSIONS-**

a) This WARRANTY shall be void if:

- BUYER fails to maintain the PRODUCT through proper care and maintenance procedures ;
- BUYER fails to operate and/or use the PRODUCT in the manner in which it was intended, and in accordance with the PRODUCT manual(s) or otherwise misuses or abuses the PRODUCT;
- BUYER fails to notify **TRANSWAY SYSTEMS INC** of a PRODUCT defect covered under this WARRANTY within 72 hours of discovery of the defect, or fails to cooperate with **TRANSWAY SYSTEMS INC** in investigating the PRODUCT defect;
- Personnel who have not been approved by **TRANSWAY SYSTEMS INC** make repairs or modifications to the PRODUCT;
- Replacement parts that have been approved by **TRANSWAY SYSTEMS INC** are used in the PRODUCT
- BUYER fails to pay for the PRODUCT in full.

b) Damage to the PRODUCT arising from extreme weather condidtions or affixing equipment or materials to the PRODUCT that have not been approved by **TRANSWAY SYSTEMS INC**, is not covered by this WARRANTY.

LIMITATIONS OF DAMAGES: TRANSWAY SYSTEMS INC SHALL HAVE NO LIABILITY TO BUYER OR OTHERWISE ARISING FROM, OR IN ANY WAY CONNECTED TO THE PRODUCT INCLUDING ITS SALE , USE OR OPERATION EXCEPT AS EXPRESSLY SET OUT HERIN. IN NO EVENT SHALL **TRANSWAY SYSTEMS INC** BE LIABLE FOR LOST PROFITS OR FOR SPECIAL, CONSEQUENTIAL, EXEMPLARY OR INCIDENTAL DAMAGES OF ANY KIND WHETHER ARISING IN CONTRACT, TORT, PRODUCT LIABILITY,NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, EVEN IF **TRANSWAY SYSTEMS INC** WAS ADVISED OF THE POSSIBILTY OF SUCH LOST PROFITS OR DAMAGES. IN NO EVENT SHALL **TRANSWAY SYSTEMS INC** BE LIABLE TO BUYER FOR ANY DAMAGES WHATSOEVER IN EXCESS OF THE TOTAL PRICE PAID BY BUYER FOR THE PRODUCT. BUYER HEREBY WAIVES ANY CLAIM THAT THE EXCLUSIONS OR LIMITATION IDENTIFIED HERIN DEPRIVE IT OF AN ADEQUATE REMEDY OR CASE THIS OR ANY OTHER AGREEMENT WITH **TRANSWAY SYSTEMS INC** TO FAIL OF IT'S ESSENTIAL PURPOSE.

Transway Systems Inc. Customer Service may be reached at:

Telephone:(905) 578-1000 www.transwaysystems.com
Toll Free: 1-800-263-4508 Email: parts@transwaysystems.com

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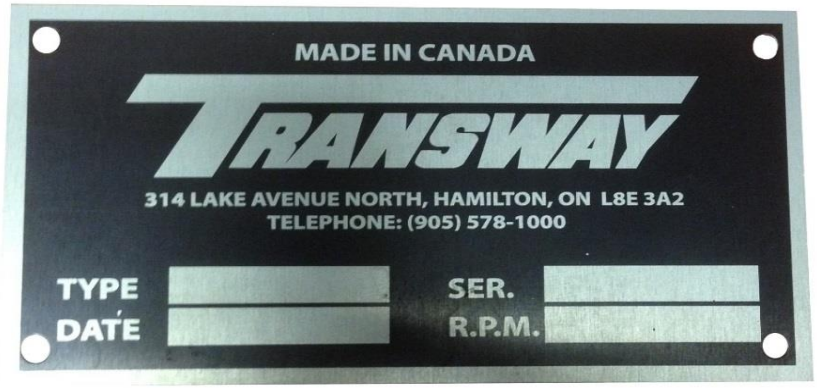


INSTALLATION

LIFTING: Lift pump by eyebolts, if provided , or with slings around body of pump close to legs.

MOUNTING: Secure pump unit to flat sturdy surface with four bolts, washers and lock washers, through holes in legs.

ATTENTION

Severe Vacuum Pump damage is possible if special care is not taken when mounting your TRANSWAY SYSTEMS INC pump. For proper pump cooling, there should be no obstrucions on either end of vacuum pump to impede airflow entering or exting the pump.If a large pulley is being used to drive the pump, special maching on the pulley may be required for directing airflow.

When installing a TRANSWAY SYSTEMS INC pump that is to be driven by a hydraulic motor or angle gearbox, the coupling on the pump shaft should be properly aligned and have a sufficent gap of .070" to allow the rotor to expand lengthwise due to heat. If sufficient clearance is not given, the rotor in the pumpwill not stay cenetered in the housing and severe pump dmage may occur. Please consult your coupling manufacturer or TRANSWAY SYSTEMS INC for more detailed information.

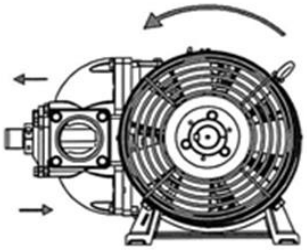
RPM

TRANSWAY SYSTEMS INC pumps should never exceed the RPM stated on the plate tag. (pump damage is possible). Pump may be run up to 20% slower than the stated RPM on the tag if required.
SEE NAME PLATE TAG.

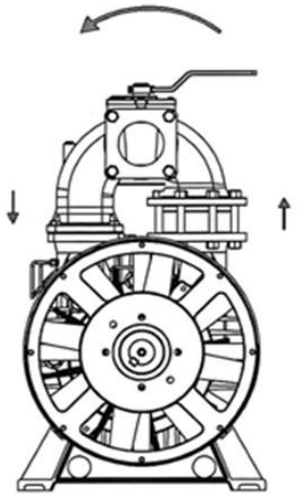
DRIVE DIRECTION :

PULLEY OR DRIVE END VIEW OF THE PUMP

TSI 370, TSI 500
SIDE VALVE MODEL SHOWN

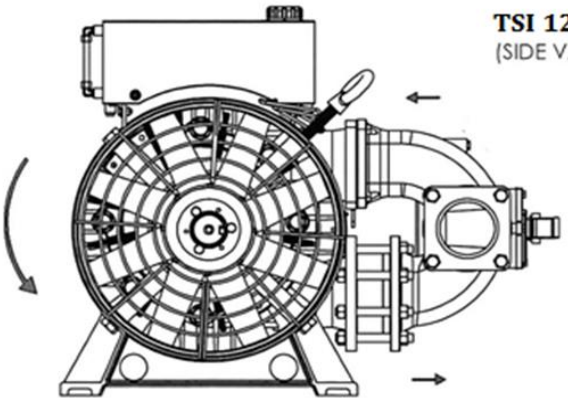


COUNTERCLOCKWISE(OR LEFT HAND)



TSI 250, TSI 800
THESE PUMPS BUILT
TOP VALVE STYLE ONLY.

TSI 1200
(SIDE VALVE SHOWN)



COUNTERCLOCKWISE(OR LEFT HAND)

MAINTENANCE

LUBRICATION:

If the suction temperature is >50° F , a SAE-40 non detergetn motor oil or an ISO 150 compressor oil can be used. If the sution temperature is <50° F a SAE-30 non detergent motor oil or an ISO 100 compressor oil is recommended. **Always check oil level before starting unit, top up if necessary.**

NEVER ALLOW PUMP TO RUN DRY !!

ALL PUMP MODELS:

Oil Tank: **IMPORTANT !**

During freezing weather, drain possible condensation build-up in bottom of oil tank.

DANGER: If water gets into oil pump, it could freeze and damage gears in pumps. Drain and clean inside of oil tank with diesel fuel periodically.

OIL CONSUMPTION (*Approximate)*

	TSI250	TSI370	TSI500	TSI800	TSI1200
1 Litre	12 HR	4.4 HR	4.4 HR	6 HR	4.2 HR
1 Imp. Gal.	55 HR	20 HR	20 HR	27 HR	19 HR
1 US Gal.	45 HR	16.6 HR	16.6 HR	22.4 HR	15.8 HR

TSI 1200 Pump Models:

When the pump had been inoperative for 48 hours or longer, push and hold down the spring loaded crank on the oil pump, while rotating the handle about 20-30 turns either way, or until oil drops can be seen dripping in oil flow valve.

OIL PUMP(EXTERNAL) FOR TSI1200 MODEL

If should have any questions regarding service of your pump, contact your local Transway Systems Dealer or call us at 1-800-263-4508. To order spare parts please refer to the Pump Parts list provided in this manual and provide the serial number for your pump.

COOLING:

NO Vacuum pump should run for a prolonged period of time without air passing through it. (At maximum vacuum) Addition of the vacuum relief valve is highly recommended. The outisde of the pump housing and the fan blade should be kept clean to allow proper cooling airflow. Do not allow buildup of dirt on the pump shroud and housing.

ACCESSORIES

FILTERS: The vacuum system should have atleast one filter beween the vaccuum tank and the pump so that only clean air is allowed to pass though the pump. These filters can be in the "primary shutoff" or "secondary shutoff", in line (between secondary and pump) or at the pump. Transway Systems' secondary shutoffs are equipped with filters.

SHUTOFF MOISTURE TRAPS:

All vacuum tanks should be equipped with an adequate "primary shutoff" and a "secondary shutoff" moisture trap to prevent liquids or semi solids from being drawn into the pump. Liquids or solid materials drawn into the pump can seriously damage the pump. Moisture traps should be drained often and always before shutting unit down when temperature is below freezing.

PRESSURE RELIEF VALVES:

A PRESSURE RELIEF VALVE MUST BE INSTALLED IN THE VACUUM SYSTEM

Test periodically to ensure proper setting is maintained. The Transway secondary shutoff is equipped with a pressure relief valve.

VACUUM RELIEF VALVES:

If pump is run for a long period of time at high vacuum, a vacuum relief valve is reccommended to protect against overheating.

PRESSURE VACUUM GAGE:

Recommended

OIL TRAP MUFFLER:

Strongly recommended to reduce noise.

*Available at Transway Systems Manufacturing for all pumps.

INTAKE PIPING:

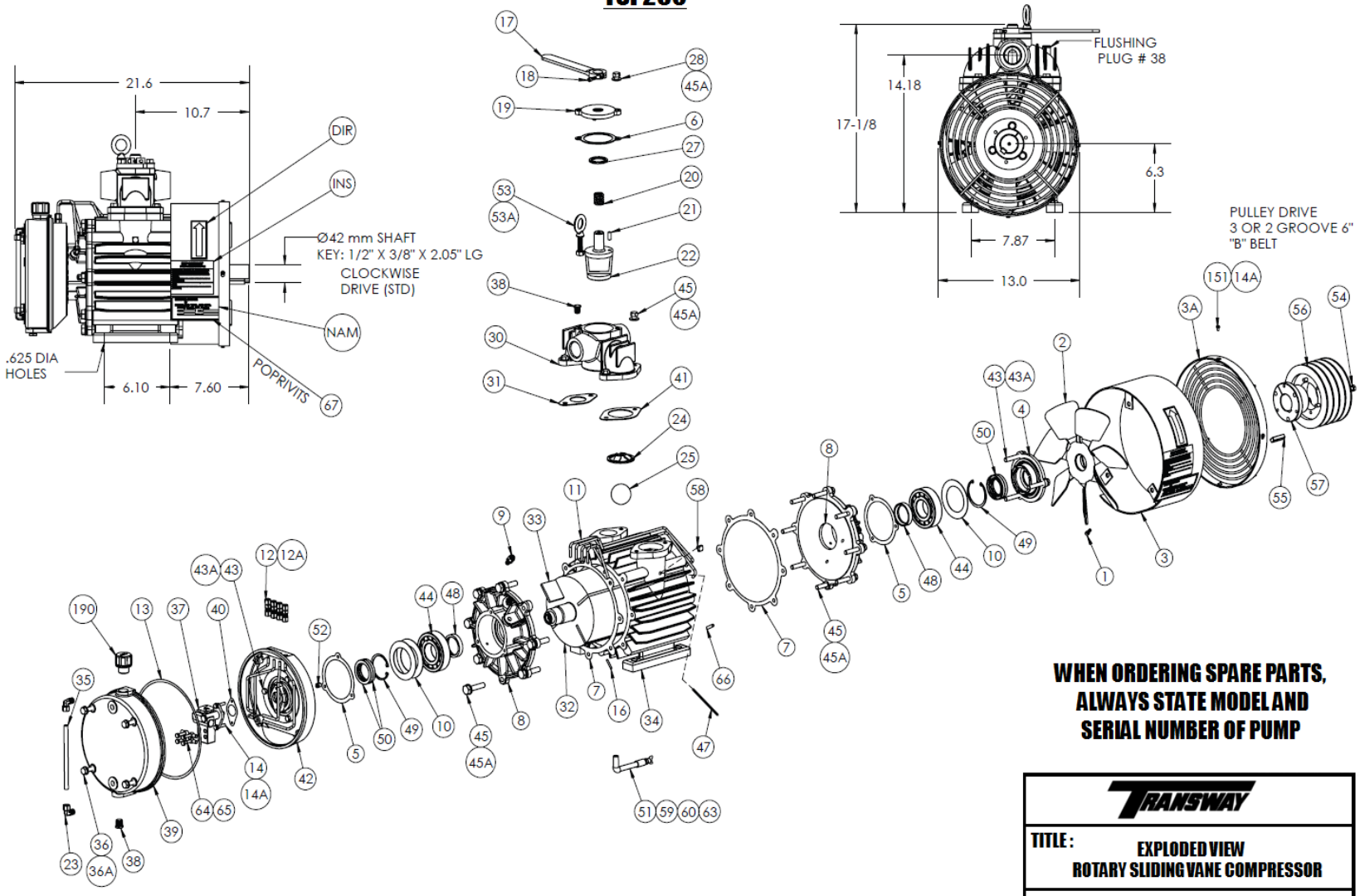
Pipes used must be free of corrosion or rust. Welding beads slag or spatter must be removed.

NON-RETURN VALVE:

(*BACK UP VALVE)*

A standard installation in all our models. It's function is to close automatically when the pump is stopped to prevent air back flow and reverse running of the pump.

TSI 250



WHEN ORDERING SPARE PARTS, ALWAYS STATE MODEL AND SERIAL NUMBER OF PUMP

TRANSWAY	
TITLE :	EXPLODED VIEW ROTARY SLIDING VANE COMPRESSOR
DWG. NO	TSI 250 PUMP

TSI 250 ITEM NUMBERS			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
1	TSI500-48B	S.H.C SCREW - 5/16-16NF X 7/8	1
2	TSI500-33*	FAN ASSY	1
3	TSI250-34*	FANSHROUD	1
3A	TSI250-35	FAN GUARD- MODIFY TSI500-35	1
4	TSI500-15	SMALL SEAL HOUSING	1
5	TSI500-70	GASKET- SEAL HOUSING	2
6	TSI250-248	GASKET DIVERTER CAP	1
7	TSI500-140	GASKET HOUSING CAP	2
8	TSI250-3	HOUSING END CAP	2
9	TSI500-50A	MALE CONNECTOR (668-4A)	4
10	TSI500-20A	BEVEL SPRING	4
11	TSI250-51A*	SET OF OIL LINES- NO FITTINGS	1
12	TSI500-52A	BULKHEAD FITTING (677-4)	4
12A	U-SEAL	U-SEAL (OILTANK BULKHEAD)	4
13	TSI500-26	GASKET-PUMP COVER	1
14	TSI500-28A	BOLT M6 X 16	5
14A	TSI500-280A	LOCKWASHER M6	5
16	TSI500-72A	ROLL PIN - 5/32 X 1 1/4	1
17	TSI250-250	VALVE LEVER	1
19	TSI250-241	VALVE CAP	1
20	TSI250-246	VANE SPRING	1
21	TSI250-247A	5/16 X 5/8 SPRING PIN	1
22	TSI250-243	DIVERTER VANE	1
23	TSI500-32A	#90 MALE ELBOW	2
24	TSI250-249A	BALL RETAINER	1
25	TSI250-252A	2' DIA, VALVE BALL	1
27	TSI250-244A	SEAL (25 X 35 X 7)	1
28	TSI500-59A	BOLT M 10 X 25	1
30	TSI250-240	DIVERTER HOUSING	1
31	TSI250-238	GASKET	1
32	TSI250-4	ROTOR	1
33	TSI250-6A	VANES	4
34	TSI250-1	HOUSING	1
35	TSI500-25A	SIGHT HOSE (1/4 x 7)	1
36	TSI500-24A	BOLT M8 X 90	4
36A	TSI500-221A	ALUM. WASHER M8	7
37	TSI500-29*	OIL PUMP*	1
38	TSI500-69A	PIPE PLUG 1/4 NPT	3
39	TSI500-23	OIL PUMP COVER	1
40	TSI500-27	GASKET-OIL PUMP	1
41	TSI250-251	GASKET	1
42	TSI500-22*	SEAL HOUSING- LARGE	1
43	TSI500-48A	BOLT M8 X 25	6

TSI 250 ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
43A	TSI120-96A	M8 LOCKWASHER	3
44	TSI500-19C	ROLLER BEARING	2
45	TSI500-67A	BOLT M10 X 30	20
45A	TSI120-94A	M10 LOCKWASHER	22
47	TSI500-81	VANE WEAR TEST ROD	1
48	TSI500-8	COLLAR	2
49	TSI500-35A	SNAPRING(N5000-237)	2
50	TSI500-225A	SEAL(42-62-8)	4
51	TSI250-32A	90 STREET ELBOW	1
52	TSI500-80A	OIL PUMP COUPLING (TDM)	1
53	TSI500-37A	EYEBOLT	1
53A	TSI500-137A	HEX NUT M-10	1
54	TSI500-0	BOLT 5/16" NCX1-1/2 INCLUDE ITEM 57	3
55	TSI500-74	KEY 3/8 x 1/2 x 2	1
56	TSI250-39A	SHEAVE GROOVE	1
57	SK42	TAPER BUSHING SK 42MM	1
58	TS250-69A	PIPE PLUG (109-A)	4
59	TSI250-30A	NIPPLE	1
60	TSI250-73A	PIPE COUPLING- 1/4	1
63	TSI500-82A	DRAINCOCK (42C-B)	1
66	TSI500-72B	ROLL PIN 1/4 X 3	1
190	TSI500-190	BREATHER FILLER	1
561	TSI800-002	ALUMINUM RIVETS 1/8 x 1/4	12
712	TSI500-240	PIPE PLUG 1 1/2 NPT	1

*** PLEASE SPECIFY PUMP ROTATION "L" OR "R"**

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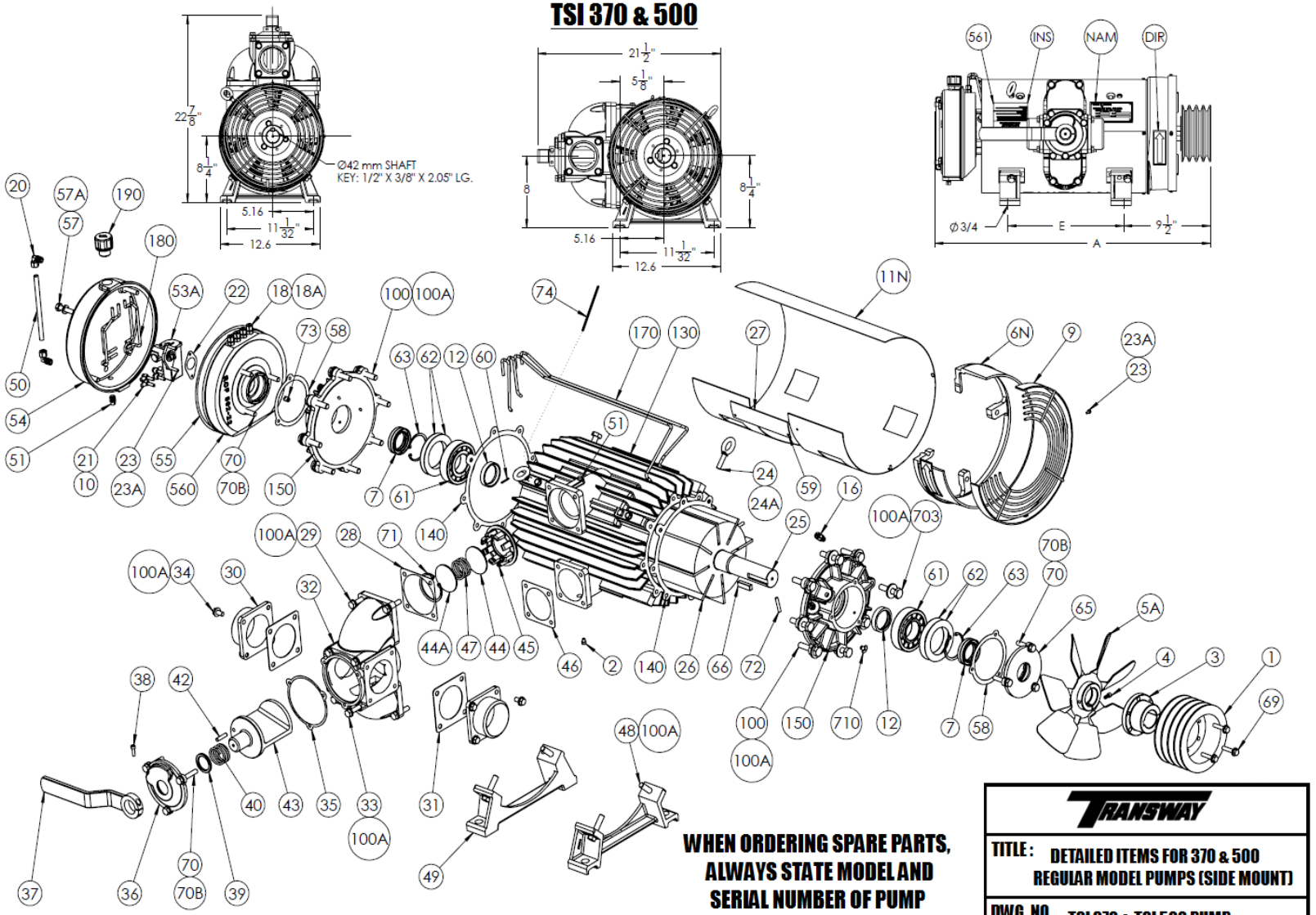
TSI 370 & 500



TRANSWAY

TITLE :	DETAILED ITEMS FOR 370 & 500 REGULAR MODEL PUMPS (SIDE MOUNT)
DWG. NO	TSI 370 & TSI 500 PUMP

TSI 370 & TSI 500 ITEM NUMBERS			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
2	TSI500-82A	DRAIN COCK 1/4" (TT242-8)	1
4	TSI500-48B	5/16"NF X 7/8" LG SHCH PLAIN	1
5	TSI500-33R*	FAN ASSY- R.H	1
6N	TSI500-24N	FAN SHROUD (NEW STYLE)	1
7	TSI500-225A	SEAL (1 PC.)	4
9	TSI500-30	FAN GUARD	1
11N	TSI500-46U*	HOUSING SHROUD- TOP VALVE	1
12	TSI500-8	COLLAR (FINISH GRIND)	2
16	TSI500-50A	CONNECTOR(FOR 1/4" TUBE)	4
18	TSI500-52A	BULKHEAD FITTING (TT469-6B)	4
18A	U-SEAL	U-SEAL (OILTANK BULKHEAD)	4
20	TSI500-32A	ELBOW FITTING (TT469-6B)	2
22	TSI500-27	GASKET- OIL PUMP	1
23	TSI500-28A	HEX BOLT M6 X 16MM	6
23A	TSI500-280A	LOCKWASHER M6	9
24	TSI500-37A	EYEBOLT	2
24A	TSI500-137A	M10 HEX NUT- Z.P	2
25	TSI500-4	500 ROTOR ASSEMBLY	1
26	TSI500-6A	VANES	8
27	TSI500-47	PLATE (7.5" X 3.4") SHROUD PLATE	1
28	TSI500-55	GASKET - INLET	1
29	TSI500-56A	S.H.C.S. M10 X 30	4
30	TSI500-18	ENDCAP	2
31	TSI500-57	GASKET- END CAPS DIVERT	2
32	TSI500-11	DIVERTER HOUSING	1
33	TSI-58A	S.H.C SCREW M10 X 150MM	4
34	TSI500-59A	HEX BOLT M10 X 25 MM- PLAIN	8
35	TSI500-60	GASKET- VALVE CAP	1
36	TSI500-12	VALVE CAP	1
37B	TSI500-13F	LEVER ASSEMBLY- FILTER PUMP	1
39	TSI500-62A	SEAL (35 X 47 X 7 BUNA N)	1
40	TSI500-14A	DIVERTER VANE SPRING	1
42	TSI500-64A	SPLIT PIN 5/16" X 1- 1/4"	1
43	TSI500-10	DIVERTER VANE	1
44	TSI500-17	BACK UP PLATE (2 PER SET)	1
45	TSI500-17C	VALVE SEAT	1
46	TSI500-65	GASKET-OUTLET	2
47	TSI500-66A	BACK-UP VALVE SPRING	1
48	TSI120-48A	HEX BOLT M10 X 40MM - PLAIN	4
49	TSI500-9	BASE	2
50	TSI500-25A	SIGHT HOSE	1
51	TSI500-69A	PIPE PLUG 1/4" NPT BLK SQ. HD	7
53	TSI500-29R*	OIL PUMP - R.H	1

TSI 370 & TSI 500 ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
54	TSI500-23	500 OIL PUMP COVER	1
55	TSI500-26	GASKET- PUMP COVER	1
57	TSI500-24A	HEX BOLT M8 X 90MM - PLAIN	4
57A	TSI500-221A	ALUM. FLAT WASHER	7
58	TSI500-70	GASKET- SEAL HOUSING	2
59	TSI500-71A	SELF DRILLING SCREW # 6	8
60	TSI500-72A	ROLL PIN 5/32 X 1 1/4	1
61	TSI500-19C	ROLLER BEARING	2
62	TSI500-20A	BEVEL SPRING	4
63	TSI500-35A	SNAP-RING (INTR RING 2-3/8)	2
65	TSI500-15	SMALL SEAL HOUSING	1
66	TSI500-74	KEY 3/8" X 1/2" X 12'	1
70	TSI500-48A	HEX BOLT M8 X 25	9
70B/607A	TSI120-96A	M8 LOCKWASHER	10
72	TSI500-72B	ROLL PIN 1/4 X 3	1
73	TSI500-80A	OIL PUMP COUPLING (TDM)	1
74	TSI500-81	VANE WEAR TEST ROD	1
100	TSI500-67A	M10 X 30MM HEX BOLT	20
100A/705	TSI120-94A	10MM LOCK WASHER -Z. P.	32
130	TSI500-1	500 HOUSING	1
140	TSI500-140	GASKET HOUSING CAP	2
150	TSI250-3	HOUSING END CAP	2
170	TSI500-51A*	OIL LINE SET FOR 500 PUMPS	1
190	TSI500-190	BREATHER FILLER	1
560	TSI500-22*	SEAL HOUSING- LARGE	1
561	TSI800-002	ALUMINUM POPRIVETS 1/8 X 1/8	12
703	TSI500-703	HEX BOLT M10 X 50MM - PLAIN	4
710	TSI250-69A	PIPE PLUG 1/4" NPT BLK SQ. HD	4
712	TSI50-240	PIPE PLUG 1 1/2 NPT	1

*** PLEASE SPECIFY PUMP ROTATION "L" OR "R"**

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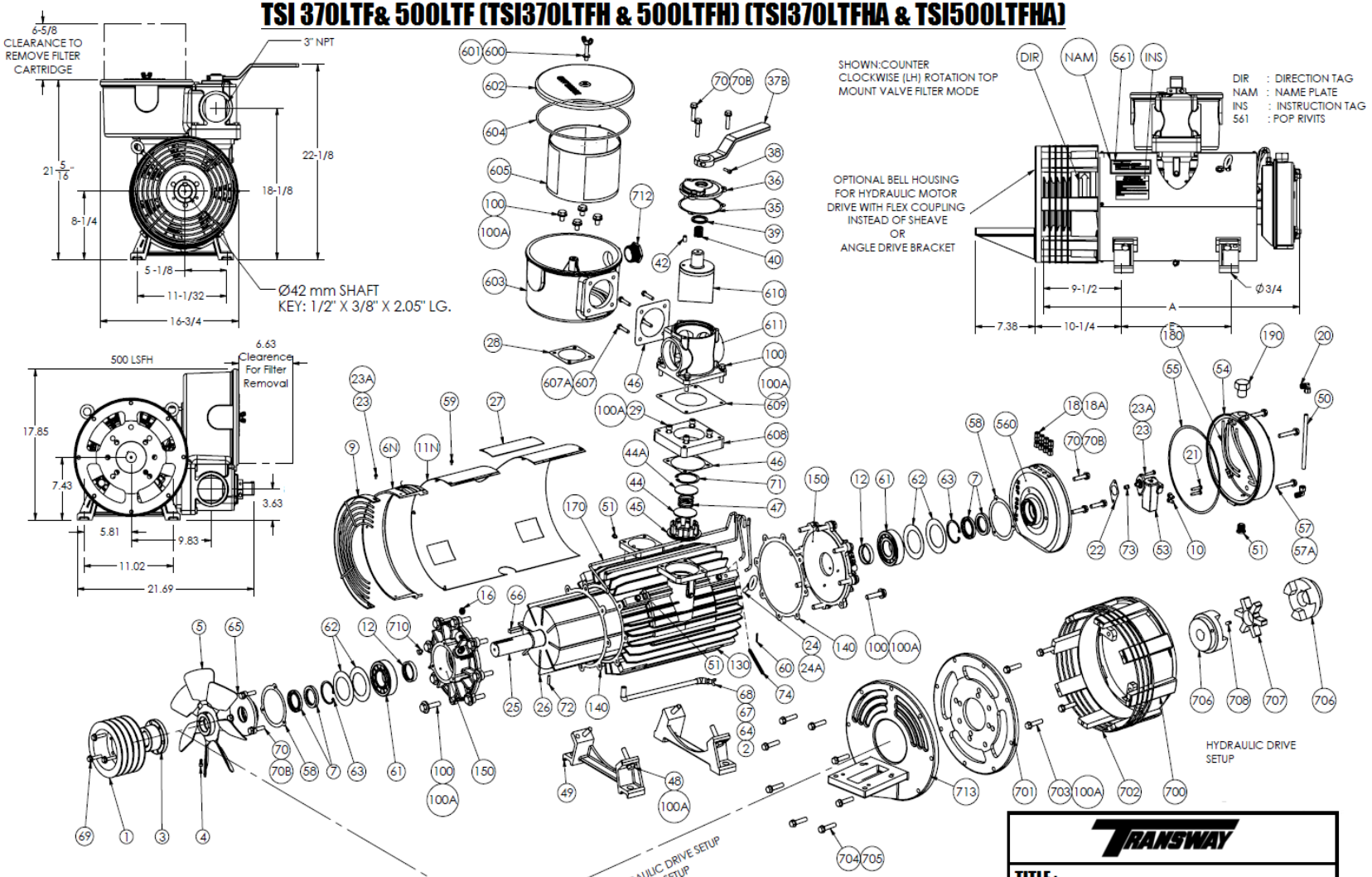
TSI 370LTF& 500LTF (TSI370LTFH & 500LTFH) (TSI370LTFHA & TSI500LTFHA)



IMPORTANT : WHEN ORDERING SPARE PARTS ALWAYS SPECIFY MODEL AND SERIAL NUMBER OF PUMP

ON UPRIGHT PUMPS NO SPRING (IT. 47) IS USED IN THE BACK-UP VALVE ASSY.

WHEN ORDERING SPARE PARTS, ALWAYS STATE MODEL AND SERIAL NUMBER OF PUMP

TRANSWAY

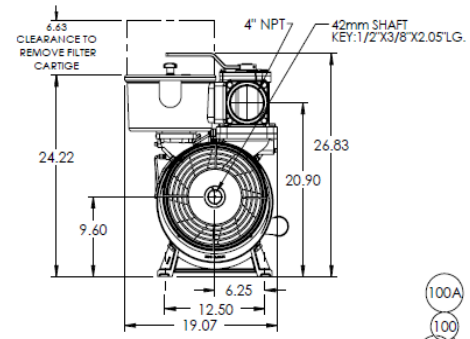
TITLE :	DETAILED ITEMS FOR 370 & 500 FILTER MODEL
DWG. NO	TSI 370 & TSI 500 PUMP

TSI 500 LTFH ITEM NUMBERS			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
2	TSI500-82A	DRAIN COCK 1 1/4"	1
4	TSI50-48B	5/16"NF 7/8"LG. SHCS PLAIN	1
5	TSI500-33L*	FAN ASSY- L.H	2
7	TSI500-225A	SEAL (1 PC.)	4
9	TSI500-30	FAN GUARD	1
11N	TSI500-46U*	HOUSING SHROUD-TOP VALVE	1
12	TAI500-8	COLLAR (FINISH GRIND)	2
16	TSI500-50A	CONNECTOR (FOR 1/4" TUBE)	4
18	TSI500-52A	BULKHEAD FITTING (77-4)	4
18A	U-SEAL	U-SEAL (OIL TANK BULKHEAD)	4
20	TSI500-32A	ELBOW FITTING	2
22	TSI500-27	GASKET-OIL PUMP	1
23	TSI500-28A	HEX BOLT M6 X 16MM	6
23A	TSI500-280A	LOCKWASHER M6	9
24	TSI500-37A	EYEBOLT	2
24A	TSI500-137A	M10 HEX NUT ZP.	2
25	TSI500-4	500 ROTOR ASSEMBLY	1
26	TSI500-6A	VANES	8
27	TSI500-47	PLATE (7.5" X 3.4") SHROUD PLATE	1
28	TSI500-55	GASKET-INLET	1
29	TSI500-56A	S.H.C.S M10X30	4
34	TSI500-59A	HEX BOLT M10 X25MM - PLAIN	8
35	TSI500-60	GASKET-VALVE CAP	1
36	TSI500-12	VALVE CAP	1
37B	TSI500-13F	LEVER ASSEMBLY - FILTER PUMP	1
39	TSI500-62A	SEAL (35 X 47 X 7 BUNA N)	1
40	TSI500-14A	DIVERTER VANE SPRING	1
42	TSI500-64A	SPLIT PIN 5/16" X 1 1/4	1
45	TSI500-17C	VALVE SEAT	1
46	TSI500-65	GASKET- OUTLET	2
47	TSI500-66A	BACK-UP VALVE SPRING	1
48	TSI120-48A	HEX BOLT M10 X 40MM- PLAIN	4
49	TSI500-9	BASE	2
50	TSI500-25A	SIGHT HOSE	1
51	TSI500-69A	PIPE PLUG 1/4" NPT BLK SQ. HD	7
53	TSI500-29*	OIL PUMP	1
54	TSI500-23	500 OIL PUMP COVER	1
55	TSI500-26	GASKET- PUMP COVER	1
57	TSI500-24A	HEX BOLT M8 X 90MM - PLAIN	4
57A	TSI500-221A	ALUM. FLAT WASHER	7
58	TSI500-70	GASKET - SEAL HOUSING	2
59	TSI500-71A	SELF DRILLING SCREW #6	8
60	TSI500-72A	ROLL PIN 5/32 X 1 1/4	1

TSI 500 LTFH ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
61	TSI500-19A	ROLLER BEARING	2
62	TSI500-20A	BEVEL SPRING	4
63	TSI500-35A	SNAP-RING (INTR RING 2 3/8)	2
64	TSI250-73A	BLK. MAL. PIPE COUPLING 1/4"	1
65	TSI500-15	SMALL SEAL HOUSING	1
66	TSI500-74	KEY 3/8" X 1/2" X 12'	1
67	A270-3	NIPPLE 1/4" NPT X 3 1/2 STD. BLK	1
68	A270-40	1/4" NPT FEM. 90 BLK MAL ELBOW	1
70	TSI500-48A	HEX BOLT M8 X 25	9
70B/607A	TSI120-96A	M8 LOCKWASHER	10
71	TSI500-78A	SNAP-RING (INTR RING 2 5/8)	1
72	TSI500-72B	ROLL PIN 1/4 X 3	1
75	A270-5	1/4" NPT X 1 1/2 NIPPLE	1
100	TSI500-67A	M10 X 30MM HEX BOLT	20
100A/705	TSI120-94A	10MM LOCK WASHER- Z.P	32
130	TSI500-1	500 HOUSING	1
140	TSI500-140	GASKET HOUSING CAP	2
150	TSI250-3	HOUSING END CAP	2
170	TSI500-51A*	OIL LINE SET FOR 500 PUMPS	1
190	TSI500-190	BREATHER FILLER	1
560	TSI500-22*	SEAL HOUSING- LARGE	1
561	TSI800-002	ALUMINUM POPRIVETS 1/8 X 1/8	12
600	TSI500-F00	TEE BOLT (FULL THREAD) S.S	1
601	TSI500-F01	C.WASHER	1
602	TSI500-FL	FILTER BOX LID	1
603	TSI500-FB	FILTER BOX	1
604	TSI500-04	O'RING #378	1
605	TSI500-FC	ST.ST FILTER CARTRIDGE	1
607	TSI500-F07	HEX BOLT M8 X 30MM	4
608	TSI52-TP	TRANSISTION PLATE	1
609	TSI500-65F	GASKET TRANS. PLATE	1
610	TSI500-10F	DIVERTER VANE-FILTER	1
611	TSI500-11F	DIVERTER HOUSING	1
700	TSI500-BH	HYD. DRIVE BELL HOUSING	1
701	TSI500-MP	MOUNTING PLATE	1
702	TSI500-GR	GUARD RINGS (1.PCS)	4
703	TSI500-703	HEX BOLT M10 X 50MM - PLAIN	4
710	TSI250-69A	PIPE PLUG 1/8" NPT BLK SQ. HD	4
712	TSI00-ADA2	ANGLE DRIVE ADAPTOR	1

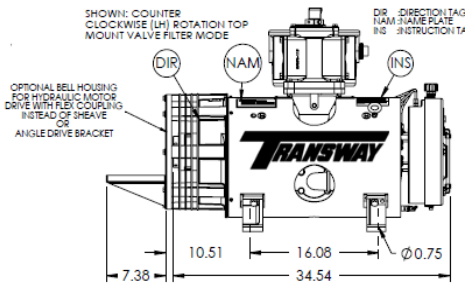
*** PLEASE SPECIFY PUMP ROTATION "L" OR "R"**

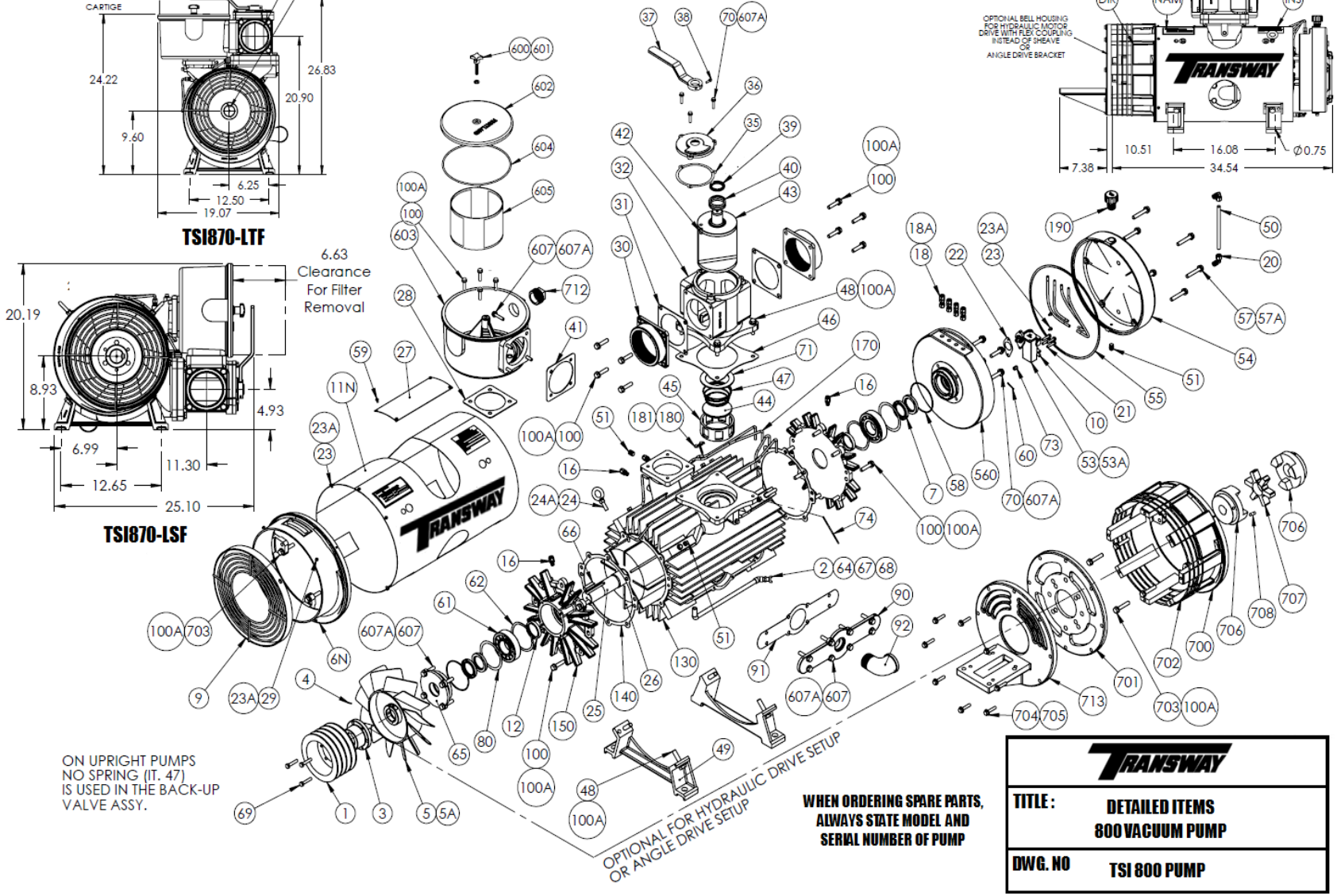
TSI 800



TSI870-LTF

TSI870-LSF





ON UPRIGHT PUMPS
NO SPRING (IT. 47)
IS USED IN THE BACK-UP
VALVE ASSY.

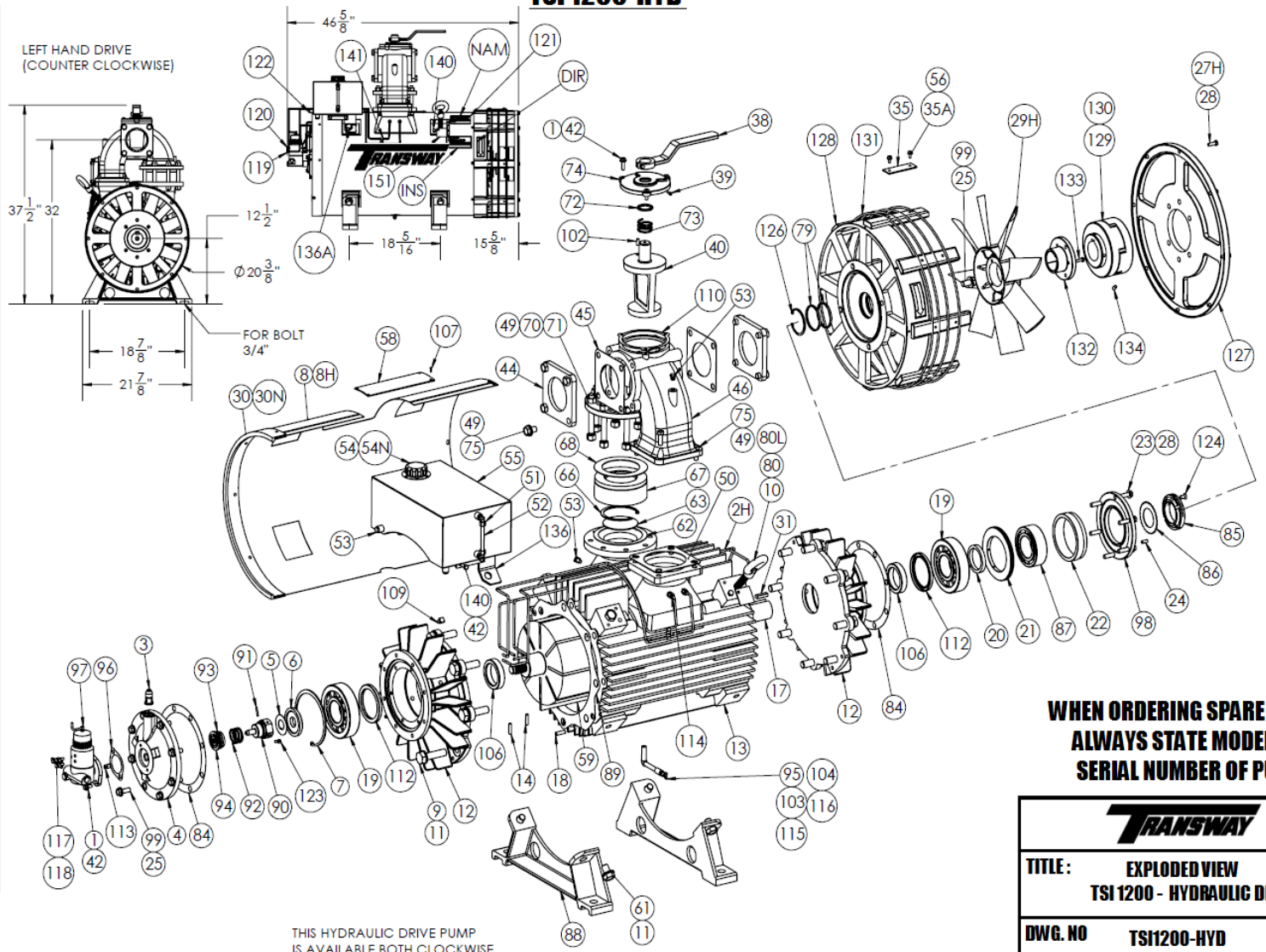
WHEN ORDERING SPARE PARTS, ALWAYS STATE MODEL AND SERIAL NUMBER OF PUMP

TRANSWAY	
TITLE :	DETAILED ITEMS 800 VACUUM PUMP
DWG. NO	TSI 800 PUMP

TSI 800 ITEM NUMBERS			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
1	TSI500-28A	HEX BOLT M6 X 16MM	2
1A	TSI500-280A	LOCKWASHER M6	2
2	TSI800-51A*	OIL LINE SET- NO FITTINGS	1
3	TSI500-50A	CONNECTOR (FOR 1/4" TUBE)	4
4	TSI500-52A	BULKHEAD FITTING (77-4)	4
4A	U-SEAL	U-SEAL (OILTANK BULKHEAD)	1
5	TSI120-129A	FLAT HEAD SCREW 3/8 NC X 5/8	1
6	TSI800-1A	SNAP RING (N1500-250)	1
7	TSI120-35A	SNAP RING (INTR RING 6-1/4)	1
8H	TSI800-193*	HOUSING SHROUD	1
9	TSI120-67A	HEXBOLT M20 X 50	20
11	TSI120-82A	M20 LOCKWASHER	20
12	TSI120-3	END COVER	2
13	TSI800-194	HOUSING	1
14	TSI120-14	ROLL PIN 1/4" DIA X 3 1/2 " LONG	2
17	TSI800-186	FIBRE VANE ROTOR	1
18	TSI120-86A	TAPERPIN M10	4
19	TSI120-19A	ROLLER BEARING NU 413	2
20	TSI120-87	RING SPACER	1
21	TS800-88	OUTER RING	1
22	TSI120-89	BEARING RING	1
23	TSI500-59A	HEX BOLT M10 X 25MM - PLAIN	6
24	TSI120-91A	ROLL PIN (1/4 X 1/4)	1
25	TSI120-92A	M12 LOCKWASHER	9
28	TSI120-94A	10MM LOCK WASHER - Z.P	16
29N	TSI160-33*	FAN TAPER (ALUM)	1
30	TSI120-34*	SHROUD RING	1
31	TSI120-74	KEY	1
38	TSI500-13	LEVER ASSEMBLY	1
40	TSI120-10	DIVERTER LANE	1
41	TSI500-48A	HEX BOLT M8 X25	3
42	TSI120-96A	M8 LOCKWASHER	3
44	TSI120-18	END CAP	2
45	TSI120-57	GASKET-END PLATE	2
46	TSI120-11	DIVERTER HOUSING	1
50	TSI120-55	GASKET- INLET	1
51	TSI500-32A	ELBOW FITTING (TT469-6B)	2
52	TSI800-25A	SIGHTHOSE	1
53	TSI500-69A	PIPE PLUG 1/4" NPT BLK SQ. HD	6
54	TSI500-190	BREATHER FILLER	1
55	TSI800-189	OILTANK OUTER COVER	1
55A	TSI800-191	GASKET- OIL TANK	1
55B	TSI800-188	OILTANK SEAL HOUSING	1
56	TSI800-100	ALUMINUM WASHER- M12	8

TSI 800 ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
57	TSI120-69A	HEX BOLT M12 X 30MM- PLAIN	12
58	TSI120-124	PLATE	1
62	TSI120-65	GASKET-OUTLET	1
63	TSI120-17	VALVE PLATE	1
66	TSI120-105A	SNAP RING (INTR RING 4-1/4)	1
67	TSI120-106	VALVE HOUSING	1
68	TSI120-65A	GASKET BACK-UP VALVE	1
69	TSI120-59A	M16 LOCKWASHER	20
70	TSI120-97A	HEX NUT M16- PLAIN	8
71	TSI120-107A	STUD M16 X 120MM	8
72	TSI500-62A	SEAL (35 X 47 X 7 BUNA N)	1
73	TSI500-14A	DIVERTER VANE SPRING	1
74	TSI120-12	DIVERTER VALVE CAP	1
75	TSI120-108A	HEX BOLT M16 X 40MM - PLAIN	12
76	TSI800-3A	SEAL-END COVER	2
78	TSI500-35A	SNAP-RING (INTR RING 2 3/8)	1
79	TSI500-225A	SEAL (1 PC.)	2
80	TSI120-16A	SEAL (60 X 75 X 8 BUNA N)	2
81	TSI800-001	SNAP RING (N5000-300)	1
82	TSI800-002	ALUMINUM POPRIVETS 1/8 X 1/8	30
83	TSI800-003	GREASE FITTING 1/4 NPT	2
84	TSI120-58	GASKET- OUTER END COVERS	2
85	TSI120-114*	M65X2 ROTOR NUT- RH PUMP	1
86	TSI120-115A	STAR WASHER - W13	1
87	TSI120-116A	BALL BEARING #5213 C3	1
88	TSI120-9	BASE	2
89	TSI120-7	GASKET- HOUSING CAP	2
90	TSI800-00	EYE BOLT	4
91	TSI500-72A	ROLL PIN 5/32 X 1 1/4	1
94	TSI250-30A	NIPPLE 1/4" NPT X 4 1/2	3
95	TSI250-73A	BLK. MAL PIPE COUPLING 1/4" NPT	3
96	TSI500-27	GASKET-OIL PUMP	1
97	TSI500-29*	OIL PUMP	1
98	TSI120-122	BEARING PLATE	1
102	TSI500-64A	SPLIT PIN 5/16" X 1 1/4"	1
103	TSI120-01	VANE WEAR TEST ROD	1
106	TSI120-8	COLLAR	2
107	TSI500-71A	SELF DRILLING SCREW #6	9
108	TSI800-95	INTAKE TUBE - 1/4" OD X 1 1/2 LG	1
110	TSI500-221A	ALUM. FLAT WASHER	6
111	TSI500-82A	DRAIN COCK 1/4" (TT242-8)	1
112	TSI120-127	GASKET VALVE CAP	1
113	TSI500-80A	OIL PUMP COUPLING (TDM)	1
132	SK60	TAPER BUSHING SK60MM NO KEY	1

TSI 1200-HYD



WHEN ORDERING SPARE PARTS, ALWAYS STATE MODEL AND SERIAL NUMBER OF PUMP

TRANSWAY	
TITLE :	EXPLODED VIEW TSI 1200 - HYDRAULIC DRIVE
DWG. NO	TSI1200-HYD

TSI 1200 WITH HYDRAULIC ITEM NUMBERS			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
1	500-48A	HEX BOLT M8 X 25	5
2	TSI120-51A	SET OIL LINES - LESS FITTINGS	1
3	TSI120-78A	OIL FLOW VALVE	1
4	TSI120-5	OUTER END COVER	1
5	TSI120-80A	SAFTEY LOCKWASHER	1
6	TSI120-81	ADAPTOR SPACER	1
7	TSI120-35A	SNAP RING (INTR RING 6 1/4)	1
8H	TSI120-46H	HOUSING SHROUD- SHORT STYLE	1
10	TSI120-71A	HEX NUT M20	2
11	TSI120-82A	M20 LOCKWASHER	22
12	TSI120-3	ENDF COVER	2
12A	U-SEAL	U-SEAL (OILTANK BULKHEAD)	1
13	TSI120-1	1200 HOUSING	1
14	TSI120-14	ROLL PIN 1/" DIA X 3 1/2- LONG	2
17	TSI120-4	ROTOR ASSEMBLY	1
18	TSI120-86A	TAPERPIN M10	4
19	TSI120-19A	ROLLER BEARING NU 413	2
20	TSI120-87	RING SPACER	1
21	TSI800-88	OUTER RING	1
22	TSI120-89	BEARING RING	1
23	TSI500-59A	HEX BOLT M10 X 25MM- PLAIN	6
24	TSI120-91A	ROLL PIN (1/4 X 1 1/4)	1
25	TSI120-92A	M12 LOCKWASHER	12
28	TSI120-94A	10MM LOCK WASHER - Z.P	14
29H	TSI120-33N*	FAN-LEFT HAND TAPER (ALUM)	1
30	TSI120-34	SHROUD RING	1
31	TSI120-74	KEY	1
38	TSI500-13	LEVER ASSEMBLY	1
40	TSI120-10	DIVERTER VANE	1
42	TSI120-96A	M8 LOCKWASHER	13
44	TSI120-18	END CAP	2
45	TSI120-57	GASKET-END PLATE	2
46	TSI120-11	DIVERTER HOUSING	1
49	TSI120-59A	M16 LOCKWASHER	20
50	TSI120-55	GASKET-INLET	1
51	TSI500-32A	ELBOW FITTING (TT469-6B)	2
52	TSI120-25A	SIGHT HOSE (1/4' X 5)	1
53	TSI500-69A	PIPE PLUG 1/4" NPT BLK SQ. HD	8
54N	TSI120-100N	CAP/BREATHER ASSEMBLY	1
55	TSI120-23	OIL TANK ASSEMBLY	1
56	TSI500-280A	LOCKWASHER M6	10
57	TSI120-102A	HEX BOLT M6 X MM10	10
58	TSI120-124	PLATE	1
59	TSI120-6A	VANES	8

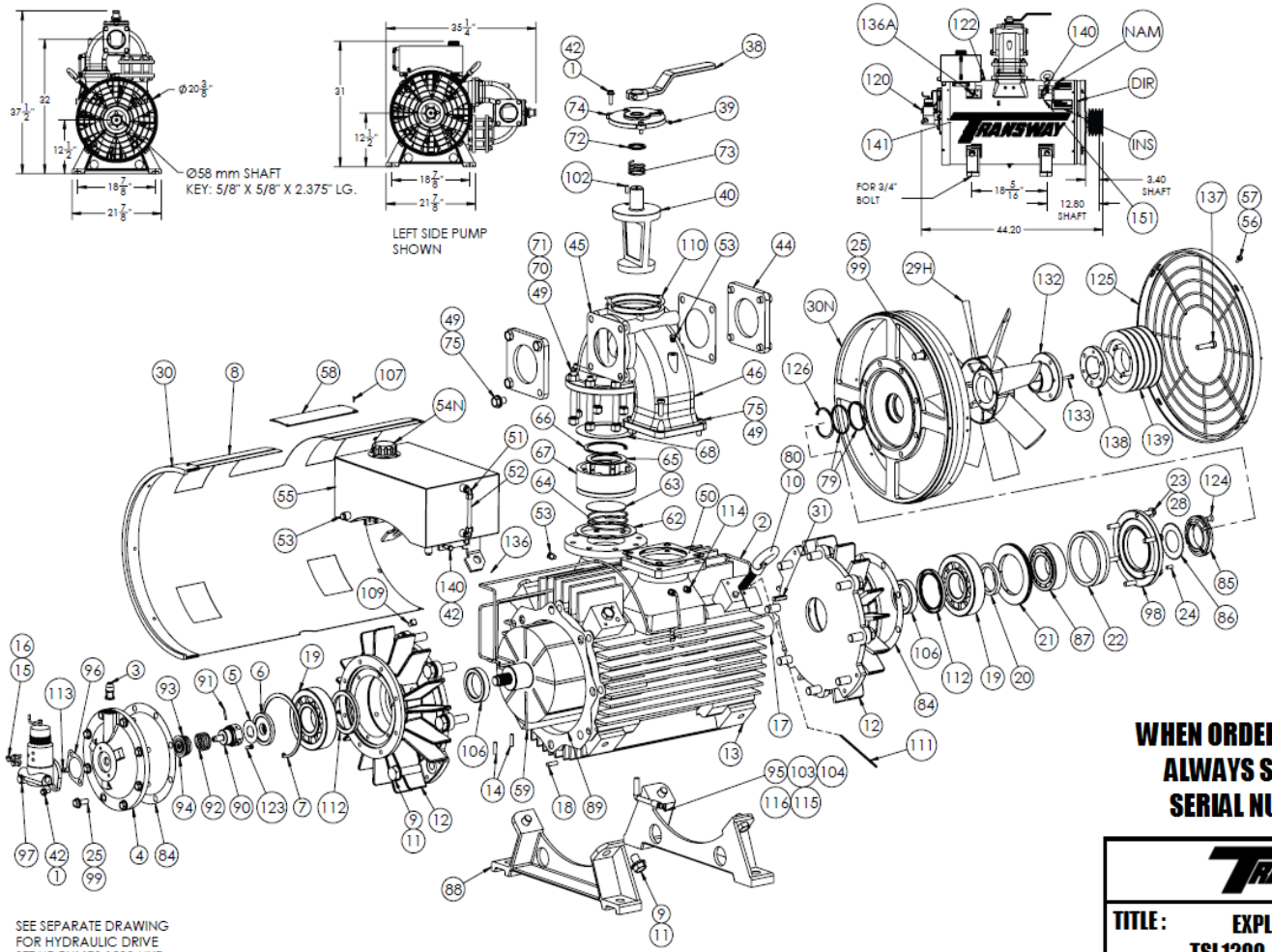
TSI 1200 WITH HYDRAULIC ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
61	TSI120-67A	HEXBOLT M20X50	20
62	TSI120-65	GASKET-OUTLET	1
63	TSI120-17	VALVE PLATE	1
65	TSI120-104	VALVE RING	1
66	TSI120-105A	SNAP RING (INTR RING 4 1/4)	1
67	TSI120-106	VALVE HOUSING	1
68	TSI120-65A	GASKET BACK-UP VALVE	1
70	TSI120-97A	HEX NUT M16-PLAIN	8
71	TSI120-107A	STUD M16 X 120 MM	8
72	TSI500-62A	SEAL (35 X 47 X 7 BUNA N)	1
73	TSI500-14A	DIVERTER VANE SPRING	1
74	TSI120-12	DIVERTER VALVE CAP	1
75	TSI120-108A	HEX BOLT M16 X 40MM - PLAIN	12
79	TSI120-16A	SEAL (60 X 75 X 8 BUNA N)	2
84	TSI120-58	GASKET-OUTER END COVERS	2
85	TSI120-114R	M65X2 ROTOR NUT	1
86	TSI120-115A	STAR WASHER-W13	1
87	TSI120-116A	BALL BEARING #5213 C3	1
88	TSI120-9	BASE	2
89	TSI120-7	GASKET-HOUSING CAP	2
90	TSI120-117	OIL PUMP-ADAPTER	1
91	TSI120-72A	ROLL PIN (5/32 X 3/4)	2
92	TSI120-118A	SPRING	1
93	TSI120-119A	O'RING #113	1
94	TSI120-120	CUP	1
96	TSI120-27	OIL PUMP GASKET	1
97	TSI120-29	OIL PUMP	1
98	TSI120-122	BEARING PLATE	1
99	TSI120-69A	HEX BOLT M12 X 30MM- PLAIN	12
102	TSI500-64A	SPLIT PIN 5/16" X 1 1/4"	1
103	TSI500-82A	DRAIN COCK 1/4" (TT242-8)	1
106	TSI120-8	COLLAR	2
107	TSI500-71A	SELF DRILLING SCREW #6	9
109	TSI250-69A	PIPE PLUG 1/8" NPT BLK SQ. HD	2
110	TSI120-127	GASKET VALVE CAP	1
112	TSI800-3A	SEAL- END COVER	2
113	TSI120-30	OIL PUMP COUPLING (DFG)	1
114	TSI500-50A	CONNECTOR (FOR 1/4" TUBE)	7
115	TSI250-30A	NIPPLE 1/4" NPT X 4 1/2	1
116	TSI250-73A	BLK. MAL PIPE COUPLING	1

TSI 1200 WITH HYDRAULIC ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
121	TSI800-002	ALUMINUM POPRIVETS 1/8 X 1/8	50
122	TSI120-50A	CONNECTOR FOR 5/16 TUBE	1
123	TSI120-128A	S.H.C.S. M6 X 25MM	2
124	TSI120-129A	FLAT HEAD SCREW 3/8 NC X 5/8	1
127	TSI120-MP	MOUNTING PLATE F. HYD MOTOR	1
128	TSI120-BH	BELL HOUSING	1
136	TSI20-136	OIL TANK MOUNTING BRACKET	2
136A	TSI120-136A	BOLT M20 X 30MM LONG	2
140	TSI120-140	HEX BOLT M8 X 20MM	6

*** PLEASE SPECIFY PUMP ROTATION "L" OR "R"**

314 Lake Ave, N. Hamilton, Ontario. Canada L8E 3A2
905-578-1000 Toll Free 1-800-263-4508
www.transwaysystems.com

TSI 1200



WHEN ORDERING SPARE PARTS, ALWAYS STATE MODEL AND SERIAL NUMBER OF PUMP

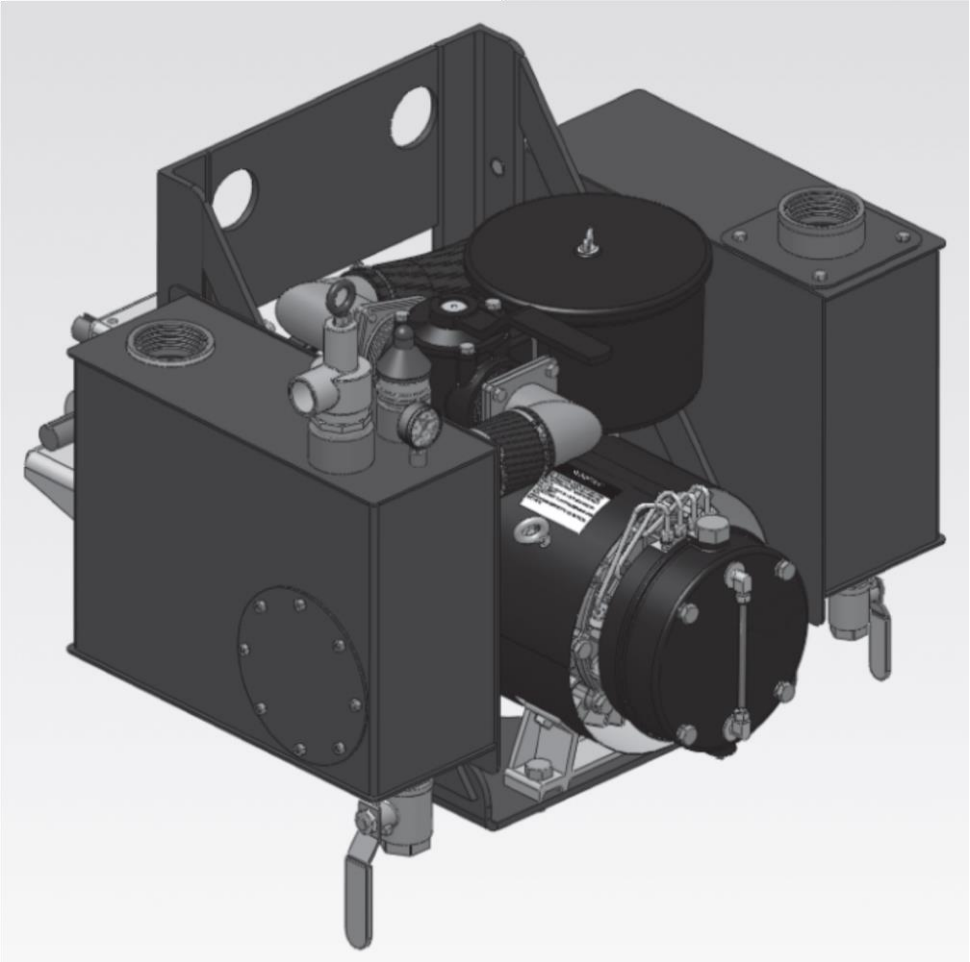
TRANSWAY	
TITLE :	EXPLODED VIEW TSI 1200 - HYDRAULIC DRIVE
DWG. NO	TSI1200-HYD

TSI 1200 (NOT HYDRAULIC) ITEM NUMBERS			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
1	TSI500-48A	HEX BOLT M8 X 25	5
2	TSI120-51A	SET OIL LINES- LESS FITTINGS	1
3	TSI120-78A	OIL FLOW VALVE	1
4	TSI120-5	OUTER END COVER	1
5	TSI120-80A	SAFETY LOCKWASHER	1
6	TSI120-81	ADAPTOR SPACER	1
7	TSI120-35A	SNAP RING (INTR RING 6 1/4)	1
8H	TSI120-46H	HOUSING SHROUD-SHORT STYLE	1
11	TSI120-82A	M20 LOCKWASHER	22
12	TSI120-3	END COVER	2
12A	U-SEAL	U-SEAL (OIL TANK BULKHEAD)	1
14	TSI120-14	ROLL PIN 1/4" DIA. X 3 1/2" LONG	2
17	TSI120-4	ROTOR ASSEMBLY	1
18	TSI120-86A	TAPERPIN M10	4
19	TSI120-19A	ROLLER BEARING NU 413	2
20	TSI120-87	RING SPACER	1
21	TSI800-88	OUTER RING	1
22	TSI120-89	BEARING RING	1
23	TSI500-59A	HEX BOLT M10 X 25MM- PLAIN	6
24	TSI120-91A	ROLL PIN 1/4 X 1/4	1
25	TSI120-92A	M12 LOCKWASHER	12
28	TSI120-94A	10MM LOCKWASHER-Z.P	8
29N	TSI160-33	FAN- RIGHT HAND TAPER (ALUM)	1
30	TSI120-34	SHROUD RING	1
30N	TSI120-34N	ALUMINUM FAN SHROUD- DRIVE END	1
31	TSI120-74	KEY	1
38	TSI500-13	LEVER ASSEMBLY	1
40	TSI120-10	DIVERTER VANE	1
42	TSI120-96A	M8 LOCKWASHER	13
44	TSI120-18	END CAP	2
45	TSI120-57	GASKET-END PLATE	2
46	TSI120-11	DIVERTER HOUSING	1
49	TSI120-59A	M16 LOCKWASHER	20
50	TSI120-55	GASKET-INLET	1
51	TSI500-32A	ELBOW FITTING (TT469-6B)	2
52	TSI120-25A	SIGHT HOSE (1/4' X 5)	1
53	TSI500-69A	PIPE PLUG1/4' NPT. BLK SQ. HD	8
54N	TSI120-100N	CAP/BREATHER ASSEMBLY	1
55	TSI120-23	OIL TANK ASSEMBLY	1
56	TSI500-280A	LOCKWASHER M6	10
57	TSI120-102A	HEX BOLT M6 X 10MM	10
58	TSI120-124	PLATE	1
59	TSI120-6A	VANES	8
61	TSI120-67A	HEX BOLT M20 X 50	20

TSI 1200 (NOT HYDRAULIC) ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
62	TSI120-65	GASKET-OUTLET	1
65	TSI120-104	VALVE RING	1
66	TSI120-105A	SNAP RING (INTR RING 4 1/4)	1
67	TSI120-106	VALVE HOUSING	1
68	TSI120-65A	GASKET BACK UP VALVE	1
70	TSI120-97A	HEX NUT M16- PLAIN	8
71	TSI120-107A	STUD M16 X 120MM	8
72	TSI500-62A	SEAL (35 X 47 X 7 BUNA N)	1
73	TSI500-14A	DIVERTER VANE SPRING	1
74	TSI120-12	DIVERTER VALVE CAP	1
75	TSI120-108A	HEX BOLT M16 X 40MM- PLAIN	12
79	TSI120-16A	SEAL (60 X 75 X 8 BUNA N)	2
84	TSI120-58	GASKET- OUTER END COVERS	2
85	TSI120-114L	N65X2 ROTOR NUT-RH PUMP	1
86	TSI120-115A	STAR WASHER - W13	1
87	TSI120-116A	BALL BEARING #5213 C3	1
88	TSI120-9	BASE	2
89	TSI120-7	GASKET-HOUSING CAP	2
90	TSI120-117	OIL PUMP ADAPTOR	1
91	TSI120-72A	ROLL PIN (5/32 X 3/4)	2
92	TSI120-118	SPRING	1
93	TSI120-119A	O'RING # 113	1
94	TSI120-120	CUP	1
96	TSI120-27	OIL PUMP GASKET	1
97	TSI120-29	OIL PUMP	1
98	TSI120-122	BEARING PLATE	1
99	TSI120-69A	HEX BOLT M12 X 30MM - PLAIN	12
102	TSI500-64A	SPLIT PIN 5/16" X 1 1/4	1
103	TSI500-82A	DRAIN COCK 1/4" (TT242-8)	1
106	TSI120-8	COLLAR	2
107	TSI500-71A	SELF DRILLING SCREW #6	9
109	TSI250-69A	PIPE PLUG1/8' NPT. BLK SQ. HD	2
110	TSI120-127	GASKET VALVE CAP	1
112	TSI800-3A	SEAL-END COVER	2
113	TSI120-30	OIL PUMP COUPLING (DFG)	1
114	TSI500-50A	CONNECTOR (FOR 1/4" TUBE)	7
115	TSI250-30A	NIPPLE 1/4" NPT X 4 1/2	1
116	TSI250-73A	BLK. MAL PIPE COUPLING 1/4" NPT	1
121	TSI800-002	ALUMINUM POPRIVESTS 1/8 X 1/8	50

TSI 1200 (NOT HYDRAULIC) ITEM NUMBERS CONTINUED			
ITEM #	**PART NAME**	**DESCRIPTION**	**QTY PER PUMP**
122	TSI120-50A	CONNECTOR FOR 5/16 TUBE	1
123	TSI120-128A	S.H.C.S M6 X 25MM	2
124	TSI120-129A	FLAT HEAD SCREW 3/8 NC X 5/8	1
125	TSI120-290	TSI1200 FAN GUARD	1
132	SK60	TAPER BUSHING SK60MM NO KEY	1
136	TSI120-136	OIL TANK MOUNTING BRACKET	2
136A	TSI120-136A	BOLT M-20 X 30 MM LG	2
140	TSI120-140	HEX BOLT M8 X 20MM	6

Eliminator Package Instructions



ATTENTION

PLEASE READ OWNERS MANUAL FULLY BEFORE OPERATING PUMP.
FAILURE TO DO SO MAY RESULT IN SEVERE PUMP DAMAGE AND MAY VOID WARRANTY.

Transway Systems Inc.

Professional Vacuum Equipment

314 Lake Ave. N. Hamilton, Ontario Canada L8E 3A2

Direct: (905) 578-1000 Toll Free: 1 (800) 263-4508

Fax: (905) 561-9176

WWW.TRANSWAYSYSTEMS.COM

ELIMINATOR PACKAGE

INSTALLATION

Depending on the truck and truck frame it may ne necessary, and is recommended to connect the eliminator frame mount to the frame rail on the opposite side of the truck for stability. Grade 8 mounting bolts are appropriate size are recommend. No welding to the truck frame is permitted.

When connecting the hose from the primary shut off on the vacuum tank to the secondary shut off on the eliminator package or from the secondary shut off on the vacuum tank to the inlet side of the vacuum pump, make sure that proper hose clamps are used to ensure that the hose will not come off or leak, when pump is put on pressure mode.

If connecting a threaded hose barb to the diverter valve housing of a **Transway pump**, ensure that the barb does not screw into the diverter housing too far contacting the diverter vane, casing an impedance of the diverter vane to open and close properly.

Depending on the rotation of the truck PTO it may be necessary to remove the angle gearbox from the mounting plate and turn upside down to change its rotation. The pump rotation on a 500 LUF pump is counter clockwise, if looking directly at the end of the pump drive rotor shaft. There is an arrow on the pump shroud indicating direction.

On initial startup of the new system, the vacuum and pressure relief valves supplied the eliminator secondary shut off are nor pre-set, and must be adjusted to application requirements. Check tank manufacturer's specifications, or contact **Transway** for recommended settings.

The PTO of the truck should be checked and set to ensure that the vacuum pump is never allowed to run over the maximum allowed RPM of the vacuum pump. (1400 RPM on the **Transway** 500 pumps) Severe pump damages will occur with over speeding of pump.

MAINTENANCE

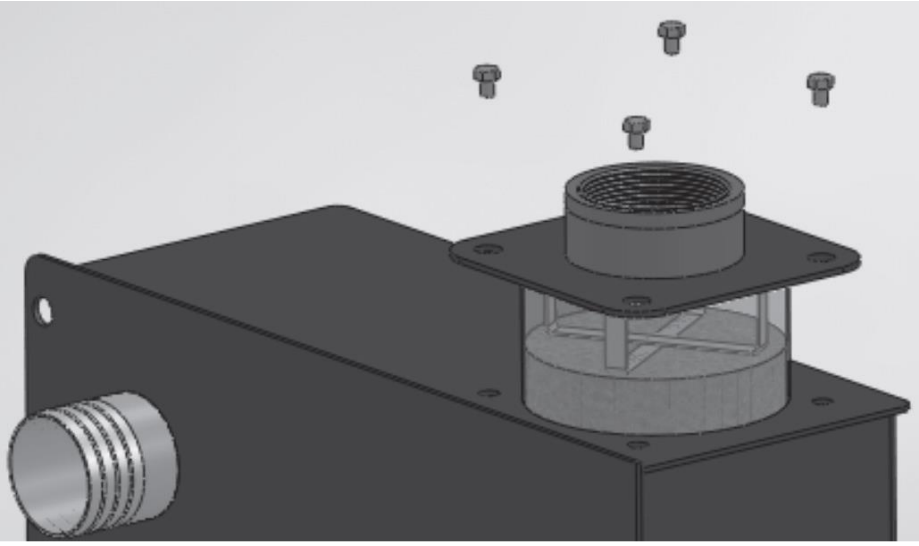
Periodic maintenance of an eliminator system and pump is required. The timeframe of the maintenance is dictated by the system application. Read the pump operation manual supplied with the package.

SECONDARY

If the operator is continually draining product from the secondary shut off, a check of the primary shut off float ball and seat should be done to ensure they are working properly and not damaged.

If the product is getting past the primary and secondary shutoff on the eliminator package into the vacuum pump, the float ball and seat of the secondary shut off on the package also has to be checked. Certain chemicals can adversely affect the float seat material, and may have to be updated to a different material if being affected. If the product is getting past both the primary and secondary shut offs and the float balls and sears are not damaged, foaming of the product being pumped may be an issue. Certain pumping procedures should be implemented to help. Call for recommendations.

MUFFLER
If the product has both shut offs and has passed through the vacuum pump into the oil catch muffler, a complete cleaning of the system, including pump flush is required. The **Transway Eliminator** oil catch muffler contains a mist filter pad that can be plugged with contamination. Removal of the mist pad by removing 4 bolts and cover is requires, the filter pad is replaceable, but can usually be cleaned with solvents.



PUMP
The stainless steel screen filter on the pump should be checked and cleaned on regular basis.
If continually being plugged with debris, a pump flush should be performed on a regular basis, as some contamination will be pushed through the filter into the pump. Vane wear checks should be performed more frequently also, as any contamination getting past the filter accelerates vane and housing wear.
A frequent check of the condition of the drive coupling between the vacuum pump and the angle gear box or hydraulic motor, should be done. The continuous starting and stopping of the pump places a large strain on the rubber element, and should be changed before metal to metal contact.
If the complete coupling or rubber insert needs to be replaced between the angle gearbox or hydraulic motor, make sure that the rubber insert has clearance between the two coupling halves. Approximately 1”. As the vacuum pump runs, and temperatures with the pump rise, the rotor in the pump expands with heat. Clearance within the coupler allows the rotor to stay centered within the pump housing. Failure to supply suffucuent clearance within the coupler may force the rotor to contact the housing and cap as the pump heats up. Severe pump damage is possible. If further clarification is required please contact

OPTIONS:

A: ITEM 6 & 5
ANGLE DRIVE GEAR BOX

OR

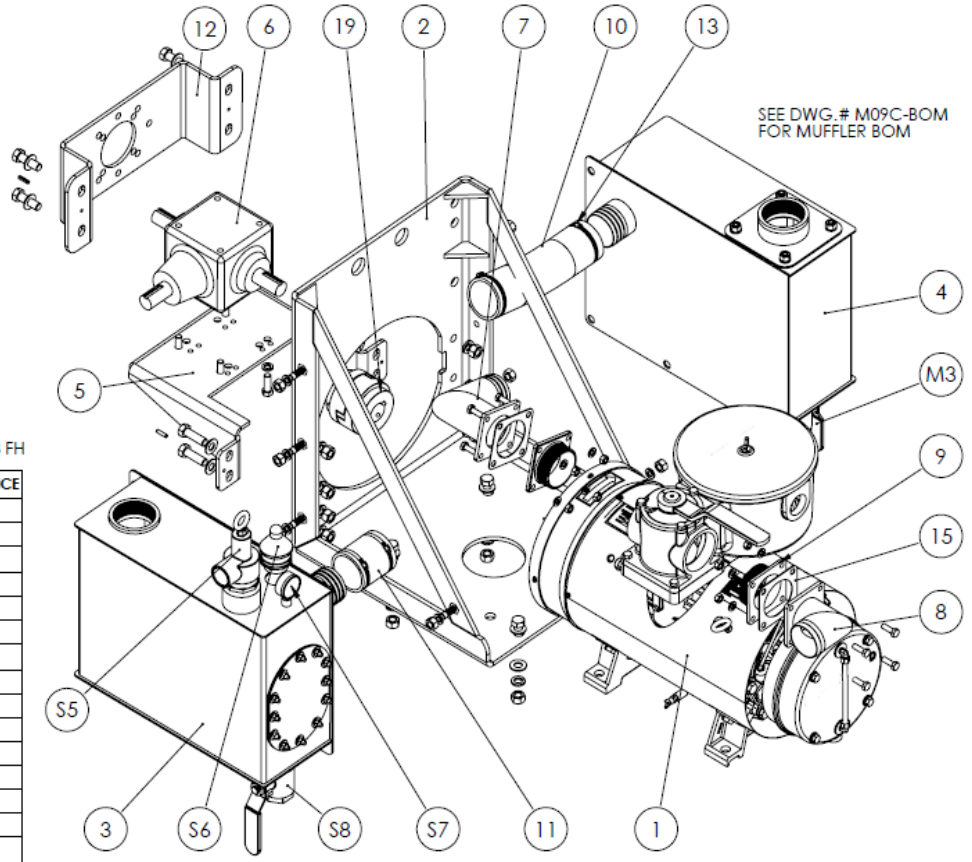
B: ITEM 12
HYDRAULIC MOTOR BRACKET

NOTES:
1. DRIVE COUPLINGS TO BE CUSTOMER SPECIFIED.
2. ALL FASTENERS TO BE SUPPLIED.

WEIGHT AS SHOWN: 817 LBS

REV 1 DCR# 368, NOTES AND COMPONENTS ADDED, 04/03/10 KA
REV 2 DCR# 410, 05/02/11 KA
REV 3 DCR# 477, ADDED TITLE BLOCK AND UPDATED PART #'S, 25/01/13 FH

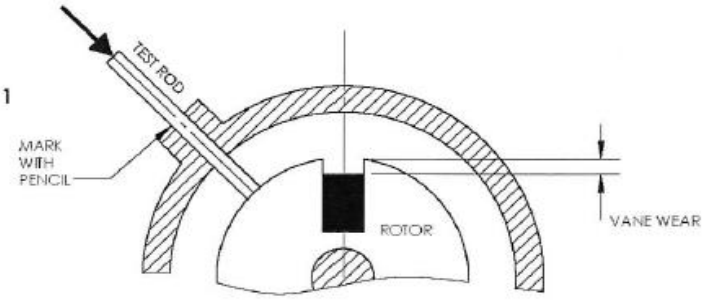
ITEM #	PART #	DESCRIPTION	QTY.	PRICE
1	500LUF	Vacumm Pump	1	
2	RF500-SC	Pedestal Frame	1	
3	RF500-S09R1C	Secondary Shut-Off (See Parts Below)	1	
4	RF500-M09C	Muffler (See Parts Below)	1	
5	ADM09C	Angle Drive Mount	1	
6	RF500-GB400	Right Angle Gear Box	1	
7	FAM09C	Flange Muffler Side	1	
8	FAS09C	Flange Secondary Shut-Off Side	1	
9	FA-3NPT-M	3" NPT Flange For Diverter	2	
10	FAM09-03	Ø3" Rubber Hose	1	
11	FAS09-03	Ø3" Rubber Hose For Secondary	1	
12	HDM09C	Hyrdaulic Motor Mount	1	
13	FAM09-04	Super Clamp SCS 86-91	4	
15	RF500-57	Pump Flange Gasket	2	
19		Customer To Specify Coupling Size	1	
		Secondary Shut-Off Parts		
	S091-A-04	5" Stainless Steel Ball (Internal)	1	
	S09-A-12	Rubber Seat For Ball (Internal)	1	
	S091-A-13	Rubber Gasket For Ball Cover (Internal)	1	
	S09-A-20	3"-5" Hose Clamp For Ball Seat (Internal)	1	
S5	PRV-2"	Pressure Relief Valve 2" NPT	1	
S6	VB	Vacuum Relief Valve 1-1/2" NPT	1	
S7	PVG-2.5	Compound Gauge 2.5" 30"VAC-30PSI	1	
S8	S09-A-14	1 1/2" Ball Valve	1	
		Muffler Parts		
	M09-07	Exhaust Plate Gasket (Internal)	1	
	M09-F1	Filter Mesh - Washable Filter Cartridge (Internal)	1	
M3	M09-A-07	1" NPT Ball Valve	1	



CUSTOMER COPY

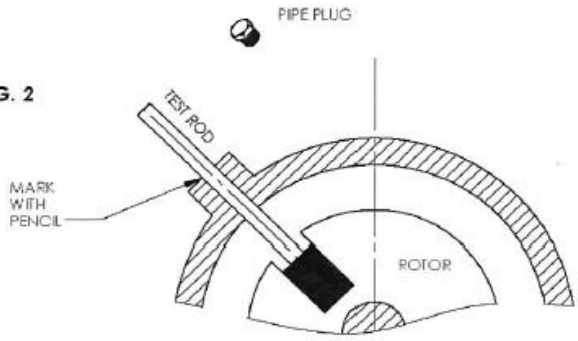
MEASURING VANE WEAR

FIG. 1



NOTE : **BE EXTRA CAREFUL NOT TO BEND THE CHECKING ROD**

FIG. 2



Vane wear (see diagram above) should not exceed 3/8" in models TSI800 and 1200 , and 1/4" in pump models 250, 370, and 500. Transway Systems pumps have atleast two orfices for checking vane wear, some models have four. These orfices are located on the housing at both ends of vacuum pump, and are marked red. A 3/16" diameter test rod is supplied with the pump. We recommend checking the vanes on both ends, as they can wear in a tapered fashion because of excess heat or contamination.

To measure vane wear, remove the plug from the orfice and insert the test rod until the rod touches the rotor. Mark the rod with pencil as shown in diagram. (fig. 1) Turn the pump shaft until the rod drops into the vane slot in the rotor. Mark with pencil again (fig.2). Distance between the pencil marks is the amount of wear you have on the vane. If the vane is tapered from end to end, take the largest measurement as the amount the vane is worn.

Replace the complete set of vanes when worn to the maximum recommended amount for your pump model. Failure to replace the vanes at the recommended time can result in pump failure. vane wear and subsequent damage are not coveres under warranty. Intructions for reaplacing vanes are given on page 34 & 35

The recommended first check of vane wear is after approximately 10 hours of operation; next check after 50 hours of operation; thereafter, check every 200 hours or once a month if no significant wear has been detected on the 2 initial checks.

TYPE	TSI 250	TSI 370	TSI 500	TSI 800	TSI 1200
Approx. Air Flow	150 CFM	259 CFM	320 CFM	420 CFM	630 CFM
Maximum Vacuum	27" Hg	28.5" Hg	28.5" Hg	28.5" Hg	28.5" Hg
Power Req @ 27" Hg	11 BHP	19 BHP	23 BHP	26 BHP	37 BHP
Pressures To	30 psi	35 psi	35 psi	35 psi	35 psi
Power Req @ Max Pressure	18 BHP	36 BHP	44 BHP	55 BHP	85 BHP
Size of Hoses	2"	3"	3"	4"	4"
Operating Speed	1400 RPM	1400 RPM	1400 RPM	1000 RPM	1000 RPM
Lubrication (Oil Pump)	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC	AUTOMATIC
Vanes	4 (fibre)	8 (fibre)	8 (fibre)	8 (fibre)	8 (fibre)
Fan Cooling Cont. Duty	YES	YES	YES	YES	YES
Approx. Net Pump Weight	255 lbs	385 lbs	450 lbs	1100 lbs	1400 lbs

VANES (FIBRE)

Life expectancy of fiber vanes is hundreds of working hours. It greatly depends on the cleanliness of the intake air. Any contamination that enters your pump (e.g sand, rust or soil particles) will shorten their life expectancy. It is the owners respsonbility to keep contamination out of pump.

KEEP FILTERS CLEAN.

VANE WEAR

Many factors can contribute to rapid or premature vane wear:

1) Overheating of the pump (check overheating in trouble shooting page 34)
2) Contamination entering the pump, or anything that can affecr the action of the oil such as abrasives or chemicals.
3) Running the pump too fast (over speeding) (check governor settigs)
4) Wrong oil or no oil.
5) Oil pump failure.
6)Pump housing damage.
7) Rotor slots worn. If contamination has gotten into the pump and has caused the rotor slots to wear unevenly, extra force is required to return the vanes into the slots as the rotor turns. This extra load can cause housing wear, vane wear and increase the pump temperature.

Since there are many factors that cause rapid vane wear, we do not warranty vanes or any related damage from vanes worn beyond the recommended amount, unless a defect in material or workmanship caused the vanes to wear prematurely.

VANE REPLACEMENT: ALL TSI 250, 370 AND 500 MODELS

- Disconnect drive source from pump.
- drain oil from oil tank and remove oil tank cover before removing the four hex bolts and aluminum sealing washers.
- Disconnect all oil lines and remove oil pump. (held by 2 bolts and lock washers)
  Do not lose the oil pump to Rotor Coupling.
- Remove the seal housing by removing 3 hex bolts and aluminum sealing washers.
- Remove 8 hex bolts and lock washers from the housing end cap and then slide the end cap off the rotor shaft. The rotor bearing and 2 bevel springs should be kept in the end cap. Please note their positioning if you remove them for replacement.
- Remove old vanes and replace the new vanes that have been dipped in oil.
- Inspect housing bore and bearings. We recommend replacing the seals and all related gaskets,
- Reassemble in reverse order.
- The 8 housing end cap bolts should be tightened evenly to 20ft./lbs torque.

Note: Special attention is to be given that the oil pump coupling is engaging the roll pin in the rotor shaft. Turn rotor by hand, it should turn freely.

- Hook up drive source to pump, fill oil tank with correct oil.
- Resume operation.

VANE REPLACEMENT: TSI 800 MODELS

- Disengage drive source to the pump.
- Drain oil from tank (plug #53). Remove 6 hex bolts #109/110 and oil tank cover #355.
- Disconnect all oil lines.
- Remove 4 hex bolts #57/56 and oil tank-seal housing #55B.
- Remove taper pins #18 from the end cap #12. This can be done by screwing a slide hammer onto the M10 X 1.5 threads on the taper pins and banging out.
- Remove 8 hex bolts #9/11 and slightly tap end cover to break gasket seal between end cap and housing. Slide end cap off rotor.
- Remove old vanes and replace with new ones that have been dipped in oil.
- Inspect housing bore, roller bearing 319, seals#79 and #76 while having the pump apart. Replace required gaskets.
- Reassemble in reverse order.
- Tighten bolts evenly to 75ft/lbs torque. (on 8 hex bolts #9)

VANE REPLACEMENT: TSI 1200 MODELS

- Disengage drive source to pump.
- Slightly loosen supply oil lin connector #122 on oil tank, then remove the same line on the oil pump and swing the line up and secure to prevent draining of oil tank.
- Remove all other oil lines from the pump.
- Remove oil pump, two bolts # 1.
- Remove outer end cover #4, eight hex bolts #99.
- Remove 2 taper pins #18 from the end cap #12. This can be done by screwing a slide hammer onto the threads of the M10 x 1.5 taper pins and banging out.
- Remove housing cap #12 by taking 8 hex bolts #9/11 out and lightly tapping the end cover to break gasket seal between housing and end cap. Slide end cap off rotor.
- Remove old vanes from the rotor.
- Inspect housing bore, roller bearing #19 and O'ring #93 in cup #94 while having the pump apart.
- Install new vanes that have been dipped in oil and replace related gaskets.
- Reassemble in reverse order.
- Tighten bolts evenly to 75ft/lbs torque (on 8 hex bolts #9)

*** If you have any questions regarding servicing of your pump, Contact your Transways Systems Dealer or call 1-800-263-4508 or online at www.transwaysystems.com**

VANES CHECKED

YEAR	20	20	20	20	20
JAN					
FEB					
MAR					
APR					
MAY					
JUN					
JUL					
AUG					
SEP					
OCT					
NOV					
DEC					
First 10 Hour Check:					
50 Hours Check:					

PUMP FLUSHING PROCEDURE

Transway recommends using our Pump Flushing Kit to assist in this procedure.

Flushing Fluid: ¾ of diesel fuel mixed with ¼ of pump oil by volume. For ease of operation Transway recommends installing the Transway Systems Pump Flushing Kit.

Procedure:

1) Stop the pump, located and remove ¼" NPT plug located on the intake flange of the pump.
   - On TSI 250, it is located on the pump diverter valve. (#38 on exploded view drawing)
   - On TSI 370 and TSI 500, it is located on the intake flange.
   - on TSI 800 and TSI 1200, it is located on the diverter valve housing.

2) Connect a brass fitting, rubber hose, ball valve and flushing fluid bottle to the port.
3) Run the pump, switch to vacuum and slowly open the ball valve.
4) Pass approximately 2 to 3 litres of the flushing fluid through the pump while restricting/ controlling the flow through the ball valve.
5)Close the ball valve and run the pump for an additional minute to remove all the flushing fluid from the pump.
6) Drain the oil catch muffler or oil seperator.
7) If you remove the Pump flushing fittings from the pump, make sure to re-install the ¼" NPT plug back to the port.
8) Resume pumping operation.

For further assistance please call: 1-800-263-4508

PUMP OUT OF USE FOR PROLONGED PERIOD(S)

Should the pump not be operated for 2 months of more (before new installation or sitting idle), the above flushing procedure should be done every 2 months.

TROUBLESHOOTING

Lack of vacuum in the tank:
-Tank not closed or leaking.
-Collapsed Hose: Check and Replace.
-Automatic Shutoff Valve is stuck: Put pump on pressure for a moment.
-Pump running backwards after stopping: Stuck on Brocken non return valve. (back-up valve)

Overheating:
-Lack of oil.
-Wrong type of oil. (see FAQ)
-Cooling fand of casing plugged with dirt.
-Pump was run too long without air passing through inside of pump. (see cooling pg 7)
-RPM too high.
-Broken oil pump.
-Clogged oil line.
-Collapsed hose.
-Clogged filter or muffler.

Pump not turning:
-Foreign material lodged in pump.
-Pump frozen. (winter conditions)
-Vane or housing broken.
-Overheated.

On TSI370, TSI500,TSI800, and TSI1200 Only.
Note: A slight metallic noise at high vacuum (above) 23-24 Hg is normal. The expanded air is too weak to hold the non-return valve (back-up valve) completely open and consequently causes the closing disk to flutter.

FAQ's

Q: What type of oil should I use in my Transway Vacuum Pump?

A: If the suction temperatute is >50°F (summer conditions), a SAE-40 non detergent motor oil or an ISO 150 compressor oil can be used. If the suction temperature is <50°F (winter conditions) a SAE-30 non detergent motor oil or an ISO 100 compressor oil is recommended.

Important Note:
We had learned several years ago that some users of Transway Pumps had used a common motor oil for pump lubrictaion. The oil most commonly used was 15w40-detergent oil that has not been recommended by Transway in the past. We have been examining the effects of using common grade motor oil and determined there have been no detrimental outcomes as result. When operated properly, Transway pumps will run cooler, use less oil and provide much longer service than any other rotary vane vacuum pump.

We recommend using SAE-40 non detergent motor oil, but find no reason not to use 15w40 motor oil when standard oil is not available.

Q: What RPM should I run my Transway Systems Rotary Vane Pump?

A: For the TSI250, TSI370, and TSI500 pumps we recommend **1300 RPM** to a maximum of **1400 RPM.** For TSI800 and TSI1200, **1000 RPM** is recommended.

Q: What is a good working vacuum level?

A: Transway rotary vane vacuum pumps are capable of achieving very high vacuum levels, up to 95% or 28.5" HgV at sea level. Factors affecting the vacuum level of the pump are speed (R.P.M), elevation (your location) and pump temperature. Please remember that at higher vacuum and speed and longer running time, moe heat is generated. For good wear life, vacuum pumps are recommended to be operated below the maximum allowable speed (1400 RPM) and temperature (375°F Exhaust)

Vacuum and pressure relief valves are generally set by the end-user based upon their own requirements and recommendations from the tank builders. Howwever the following guidelines are also recommended. For short intermittent duty (5 to 10 min), the pump can be operated at very high vacuum, up to 27" Hg and pressure up to 25 psi, while keeping a close eye at temperature rise of the exhaust air, not to exceed 375° F. Please check the integrity (age) of your system and limitaions from the tank builders before operating at higher rate. It is up to the operator of the pump to set the vacuum and pressure relief valves to suit the application. For continuous duty the relief valves can be set at 5" to 15" psi * for pressure and 15" to 22" Hg for vacuum. However there can be slight deviations from these limits based on your application, location and atmosphere.

***IMPORTANT NOTE : Pressure above 7 psi is not recommended unless thye tank and system has the appropriate certification.**

Q: How often should I flush my Transway Pump?

A: We recommend flushing the vacuum pump every 2 months. An operator who is using their pumps excessively may want to increase flushing frequency.

Q: How do I flush my Transway Pump?

A: Please view our Pump flushing procedure on page 33 for full details.

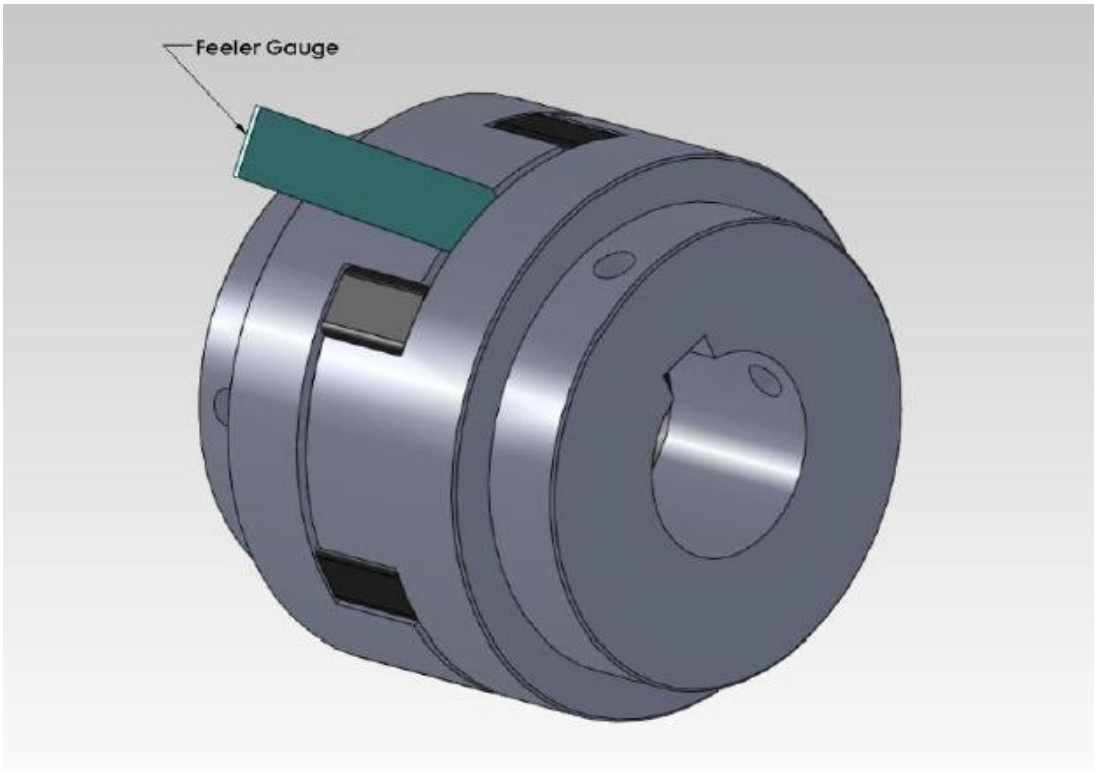
Q: What do the letters in my serial number refer to?
Answer:

- **L or R :** Denotes left or right rotation, Left being counterclockwise , right being clockwise rotation.
- **U or S:** Refers to upright or side mounted diverter valve.
- **F : R**efers to a vacuum pump that comes with an integral filter pod.
- **H or A:** Refers to Hydraulic drive bell housing or an Angle drive bell housing.

Q: why is my coupling wearing?

A: See coupling installation below.

It is very important to maintain a gap of 0.070" to 0.10" between the two halves of the coupling to achieve proper pump operations and avoid any pump failures. Please use a feeler guage as shown in the picture to maintain this gap.



Q: What tools should I keep on hand for Rebuilding and Maintenance of my Vacuum Pump?

A: Here is a list of suggested tools for rebuilding TSI250, TSI370, and TSI500:
1 Compact Air Gun
1 Rubber Hammer
1 Screw Driver - Flat
1 Ball Peen Hammer
1 6" Vice Grip
1 6" Socket Extension 3/8 Drive
1 6" Puller
1 Set of screw Driver Tips
1 Air Tool Screw Driver
1 Angle Socket Driver 3/8"
1 Metric Set Allen Key
1 Standard Allen Key Set
1 Paint Stick or felt marker
1 Internal-External Snap ring Pliers
Wrenches: 3/4", 10mm, 13mm, 17mm, 19mm, 9/16" Combination Wrenches.
Sockets: 10mm, 13mm, 11mm, 17 mm, 7/16", 5/16" Allen Key Socket, 1/4" Allen Key Socket
Allen Key Socket 3/8" Drive
1 6" Adjustable

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