

Terrco[®], Inc.

Model 3100 Series



3100 LP Motor



3100 Electric Motor

OPERATING INSTRUCTIONS

MAINTENANCE INSTRUCTIONS

ILLUSTRATED PARTS LIST

Terrco[®], Inc.

222 1st Avenue NW • Watertown, SD 57201

Phone: (605) 882-3888 • Fax: (605) 882-0778 • Email: info@terrco.com

Terrco[®] Model 3100

- Optimal for jobs exceeding 10,000 sq. ft.
- Despite the weight and size the 3100 3-P can be easily maneuvered by a single person
- Movable weights for easy one person operation
- Four 42 lbs. Pocket Weights
- Magnetic Starter or Variable Speed Drive
- Mild Steel or Stainless Steel Guards and Water Tanks
- Wet/Dry Setup
- Direct Drive, No Belts

PRODUCTION RATES

- Mastic removal rate of 500 sq. ft. per hour
- Thin-Set removal rates of 500 sq. ft. per hour
- Thin-Mil coatings removal of 200 sq. ft. per hour
- Concrete polishing rates of 1,100 sq. ft. per polishing pad
- Rough Terrazzo rate of 1,200 sq. ft. per day

Terrco[®] 3100-3P Electric

Motor	25 HP, 3 Phase, 60 Hz, 220/440 Volt
Abrasive Pressure on Discs	Weights up- 800 lbs Weights down- 1090 lbs.
Speed of Discs	60 Hz- 2480 S.F.P.M each disc 50 Hz- 2066 S.F.P.M each disc
Sweep of Discs	28" x 28"
Stone Shape	FR594- 2" diameter plug stone
Width of Machine	30 3/4"
Length of Machine	72 1/4"
Weight of Machine	1425 lbs.
Shipping Weight of Machine	1625 lbs.
Water Tank	20 gallons
Power Cord	100 feet (4-4)- 230 Volt 100 feet (6-4)- 460 Volt

Terrco[®] 3100 LP - Gas

Motor	38 H.P. Zenith
LP Tank	33# Horizontal & Vertical Liquid Withdrawal
Clutch	Heavy Duty Disc Type (Dry)
Speed of Discs	2008 S.F.P.M. each disc
Sweep of Discs	28" x 28"
Width of Machine	30 3/4"
Length of Machine	72 1/4"
Height of Machine	58 1/2" (without exhaust pipe)
Machine Net Ready to Use	1500 lbs. (without LP tank)
Shipping Weight Domestic Crated	1675 lbs.
Water Tank	20 gallons

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- WEBSITE: www.terrco.com

SAFTY PRECAUTIONS

This machine is intended for commercial use. It is designed exclusively to grind and polish Terrazzo and concrete floors. Use only recommended accessories and abrasives. When the machine is in need of repair, use only Terrco parts. All operators must read, understand and practice the following safety precautions.



WARNING: Rotating grinding wheels can cause injury, keep hands and loose clothing clear.



WARNING: Disconnect power at the machine before servicing or changing grinding stones.



WARNING: Always check ground (earth) connection prior to operating machine.

For Safety:

- 1: Have electrician hook up power to machine.
- 2: Always operate machine with ground fault protection.
- 3: Eye, hearing and respiratory protection advised.
- 4: Service and adjust guards for maximum protection. Never remove the guards.
- 5: Keep machine clean and properly serviced.

SAFETY LABEL

The safety label is located on the machine as indicated below.
Replace label if it is damaged or illegible.

 WARNING FOR SAFETY, READ OWNERS MANUAL BEFORE USING MACHINE	
	ROTATING CUTTERS KEEP GUARDS IN PLACE AND ADJUSTED KEEP HANDS AND FEET AWAY WHEN OPERATING
	WEAR EYE AND HEARING PROTECTION WHILE OPERATING THIS MACHINE
	GRINDING CAN GENERATE DUST. DUST MAY AFFECT THIS BREATHING FUNCTION. AVOID DUST CONTACT BY USE OF MASK OR RESPIRATOR.
	DISCONNECT POWER AT THE MACHINE BEFORE SERVICING MACHINE OR CHANGING GRINDING STONES. ALWAYS CHECK GROUND (EARTH) PRIOR TO OPERATING MACHINE.



SAFETY PRECAUTIONS WHEN RUNNING TERRCO GRINDERS

- A. Have a qualified electrician hook up correct power to the machine, grounded properly, with correct breakers at electrical source.
- B. When breaking down machine to change stones or to check machine always disconnect power to the machine.
- C. Check for wear to ensure no exposed wires.
- D. When grinding wet, employees must wear proper footwear.
- E. Always wear appropriate safety protection such as eyewear, hearing and if needed respiratory protection.
- F. When grinding, watch for problems on the floor such as bad joints, electrical covers, studs that can cause injury to operator or machine.
- G. Keep machines clean so any potential problems are visible.
- H. When using base machines, use guards for wet or dry grinding.
- I. Also when using base machines, operate with flexible shaft and housing as parallel to motor as possible to avoid kinks. Keep flex-shaft greased.

Operating Instructions

Introduction

This Manual has been prepared to assist and instruct you in the proper operation and maintenance of your machine. Please bear in mind that your Terrco® 3100 is a precision piece of machinery manufactured to exacting standards. In order for you to obtain maximum use of your Terrco® 3100, we suggest that you read this manual completely and thoughtfully before attempting to operate your machine. A parts diagram and parts reference sheet are included to assist you in ordering the proper parts. Always give the machine number and model number when ordering repair parts.

PRELIMINARY PROCEDURES TO FOLLOW BEFORE PUTTING THE 3100 IN OPERATION FOR THE FIRST TIME.

A. Delivery of the Machine

1. On delivery, the contractor should very carefully examine the shipping crate to see that no part of the machine is damaged. If damage is noted, request an inspection immediately and request a copy of the claim report. When accepting the machine from the delivering carrier, note the damage on the Freight Bill before signing. TERRCO® WILL NOT honor any claims for broken, damaged, or missing parts that may have occurred in shipment, as each machine is checked and inspected for the same, before leaving our plant.

B. Installation and Replacement of Grinding Stones

1. Move the counterbalancing weights to the upper weight baskets.
2. Using the flop handle, tilt machine back so that the caster wheel rests on the floor.
3. Clean mounting surface both on plug stone and stone holder. On 2" or 3" diameter plug stone, push stone in the hole and give the stone a slight twist to be certain it is securely in place.
4. Grasp machine handle and lower machine to the floor slowly so that all stones are resting on the floor. Make certain no stones have fallen or loosened while lowering the machine to the floor.

C. Transport of Machine

1. With counterbalancing weights in the upper weight baskets, tilt the machine so that the caster wheel is firmly on the floor. You can use the flop handle to pull the machine or you can fold the flop handle over and push from gear case side.

D. To operate the 3100

1. Disconnect electrical source.
2. Install stones per instructions in #1B.
3. After stones are installed, lower the machine until it is in operating position. CAUTION - Never attempt to start the machine while lowering machine to the floor, as rear stones will strike on corners resulting in thrown stones and possible damage to the machine.
4. Before plugging into the electrical system, check the voltage at the source. The minimum acceptable voltage is (210/420 Volt, 60 HZ, 3 phase), or (380 Volt, 50 HZ, 3 Phase). Anything lower than this can result in blown heaters and possible motor burnout.
5. If the machine is to operate in an area more than 100 feet from the source, it will be necessary to use the next larger size cable (#4-4) from the source to the 100 feet of #6-4 wire cable that was furnished with the machine.
6. After you have the cable in place, relieve pressure on the stones by applying your weight on the handle and push the start button on the starter switch, then releasing pressure on the handle to lower the machine to the floor.
7. We recommend that the first pass over the floor be made with the weights in the upper weight baskets. After the floor is "roughed" out, move the weights to the weight baskets located on the gear case for maximum abrasive pressure.
8. Be sure to periodically check stone wear, to prevent grinding with the steel plugs, rather than the stones.

Starting the 3100LP

E. To Start the 3100 LP Propane Engine

1. A 33 lb. special combination vertical-horizontal propane cylinder liquid withdrawal Model No. TU33L, must be used on this machine fitted with a Rego #7141 male fitting. The Terrco® 3100LP operates on the liquid principle.

2. When installing tanks, the bottom guide hole near the top of the cylinder must drop over the locating pin on the cylinder bracket of the handle. Connect quick coupler to the cylinder. DO NOT USE A WRENCH - only hand tighten.

3. You are now ready to open main gas valve in fuel tank. CAUTION - "SLOWLY" open main gas valve in the fuel tank. An abrupt full opening of the valve will induce dirt from within the tank to enter the fuel line. Too rapid an opening can also cause frost to form on the fuel filter, main valve, and inlet line. **CHECK FOR GAS LEAKS WITH SOAP SUDS SOLUTION. THERE MUST BE NO LEAK.**

4. Check oil level of crankcase.

5. Make certain clutch is disengaged.

6. Place weights in the "up" position.

7. Attach battery cables from starter to the battery.

8. Pull throttle knob a quarter to half way out.

9. Pull out ignition switch to "on" position and press rubber start button to start.

10. Allow engine to warm up approximately 10 minutes.

11. After a few minutes of warm-up and with weights in the upper weight baskets, pull throttle lever out to full open position, apply weight on the handle to relieve pressure on stones and engage clutch (pull clutch handle towards you).

NOTE: We recommend that for the first eight hours the machine be operated with the weights in the upper weight baskets to allow engine to break in without undue load factor.

12. After the initial eight hour engine break in period, we suggest that on all future operations, that you make your first "rough" grind operation with the weights in the upper weight baskets. You can then lower the weights to the lower weight baskets for the remaining portion of the rough grinding operation.

13. There may be excessive oil consumption during the first 10 days of operation during the break in period. If oil consumption is over 1 quart per day, contact you local AUTHORIZED WISCONSIN repair station.

14. CAUTION Do not operate Terrco®

General Maintenance for your TERRCO® 3100

A. Gear Case

1. Ref. #10 - Four grease fittings to be greased with 3 shots of Mobilith AW1 or the equivalent every six months.

2. Ref. #29 - The main gear box contains 28 pounds of Mobilith AW1. Check the level once a year by removing plug at the front of the gear case. Grease should be half-way up on the drive upper gear. **DO NOT FILL TO THE TOP.** The drive gear must not be covered, as you will create a condition of extreme pressure with resultant seal damage and grease leakage.

B. Spark Plugs

1. Every 100 hours or every two weeks check spark plug gap and reset. Use D9J (Champion) for LP gap at 0.030”.

C. Air Filter

1. Clean everyday.

D. Clutch (Dry) Special Feramic Face.

1. Your clutch will need adjustment if your clutch shows evidence of slipping or overheating.

2. To adjust clutch:

a. Close fuel shut off valve on tank.

b. Disconnect fuel line.

c. Remove inspection plate over clutch housing and follow directions in Wisconsin Manual.

E. Belt Replacement

1. Remove belt guard (Fig. 2)

2. Loosen locking nut on adjusting screw, (Fig. 2), and loosen adjusting screw.

3. Loosen three cap screws (Fig. 2) on idler bracket and push idler bracket forward.

4. Remove worn belt. With new belt positioned in their respective grooves on pinion sheave, pull belt out to you and position in respective grooves on idler bracket sheaves. Pull up and align belt on engine drive sheave.

5. Tighten adjusting screw until required belt tension is obtained. (Belt should compress no more than 1/16” with full thumb pressure midway between engine pulley and idler pulley) Tighten lock nut and then securely tighten three cap screws on idler pulley bracket.

6. Replace belt guard.

F. Timing of Stone Spiders

1. Whenever repairs are necessary in the gear case, which requires removal of the engine and pinion gear assembly, the following procedure is to be followed. Where gear replacement is necessary:

a. Remove belt guard, loosen idler bracket, remove belt.

b. Unbolt engine from mounting base.

c. Unbolt engine mounting base and remove.

d. Loosen and remove top bearing plates. Loosen and remove gear shaft lock nuts, top and bottom.

e. Loosen and remove all nuts, gear case cover and remove stone spider, morflex coupling, and driving spider.

IMPORTANT: After removing drive spider, be certain to remember or mark position of keyway relative to fixed position on gear case.

f. With drive shaft out, you are in a position to remove the damaged gear of shaft.

g. Position gear and shaft in case, aligning keyway in position marked on removal. Install lower bearing, grease seal, key, drive spider, lock nut, morflex coupling, and stone spider - in that order.

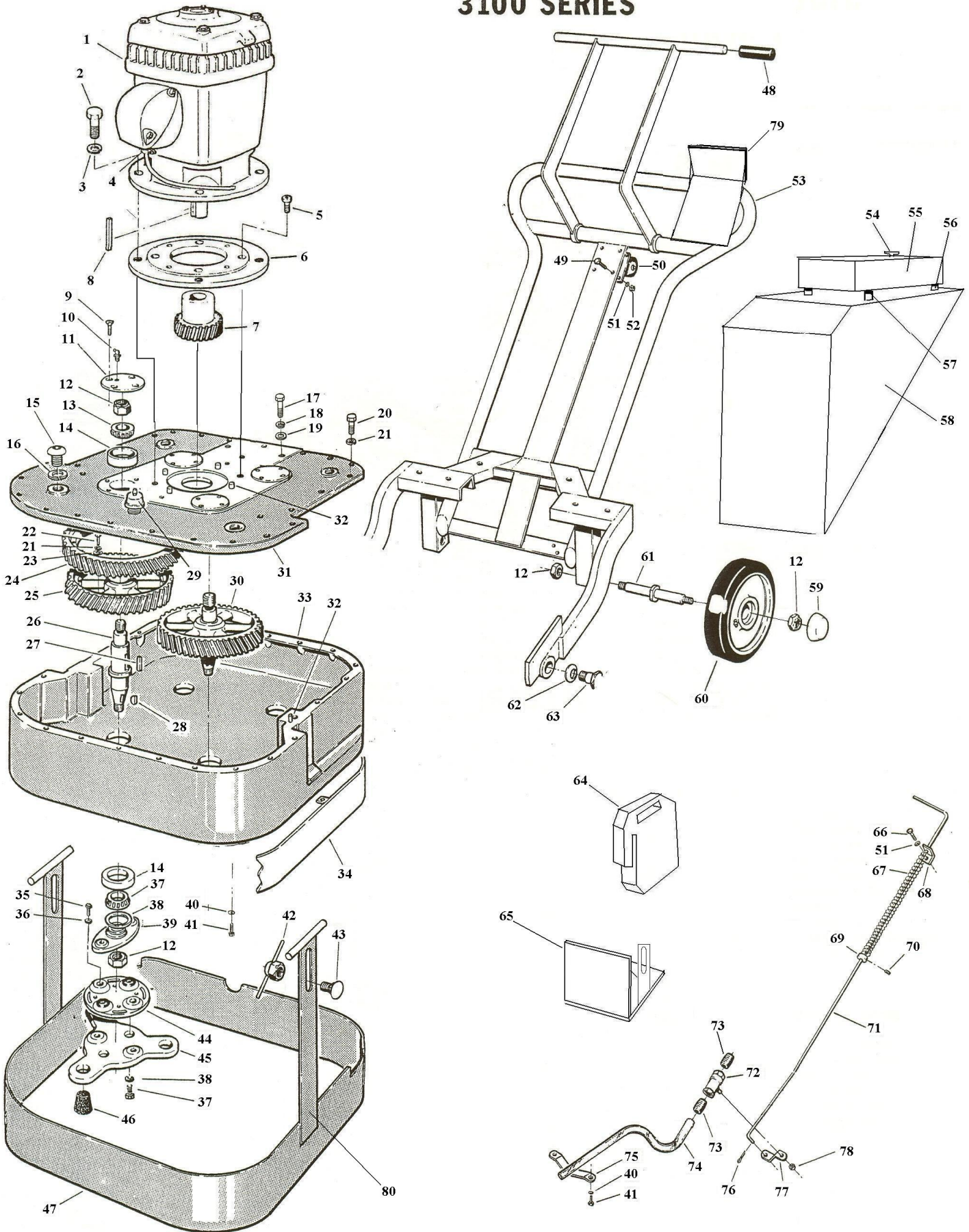
h. When you have installed the stone spider, it should be perfectly timed. If they are not, you are off on the alignment of the keyway and will have to adjust.

i. Timing drive gears - See Fig. 3 and follow instructions.

j. Install belt per instructions.

k. Install belt guards if furnished with machine.

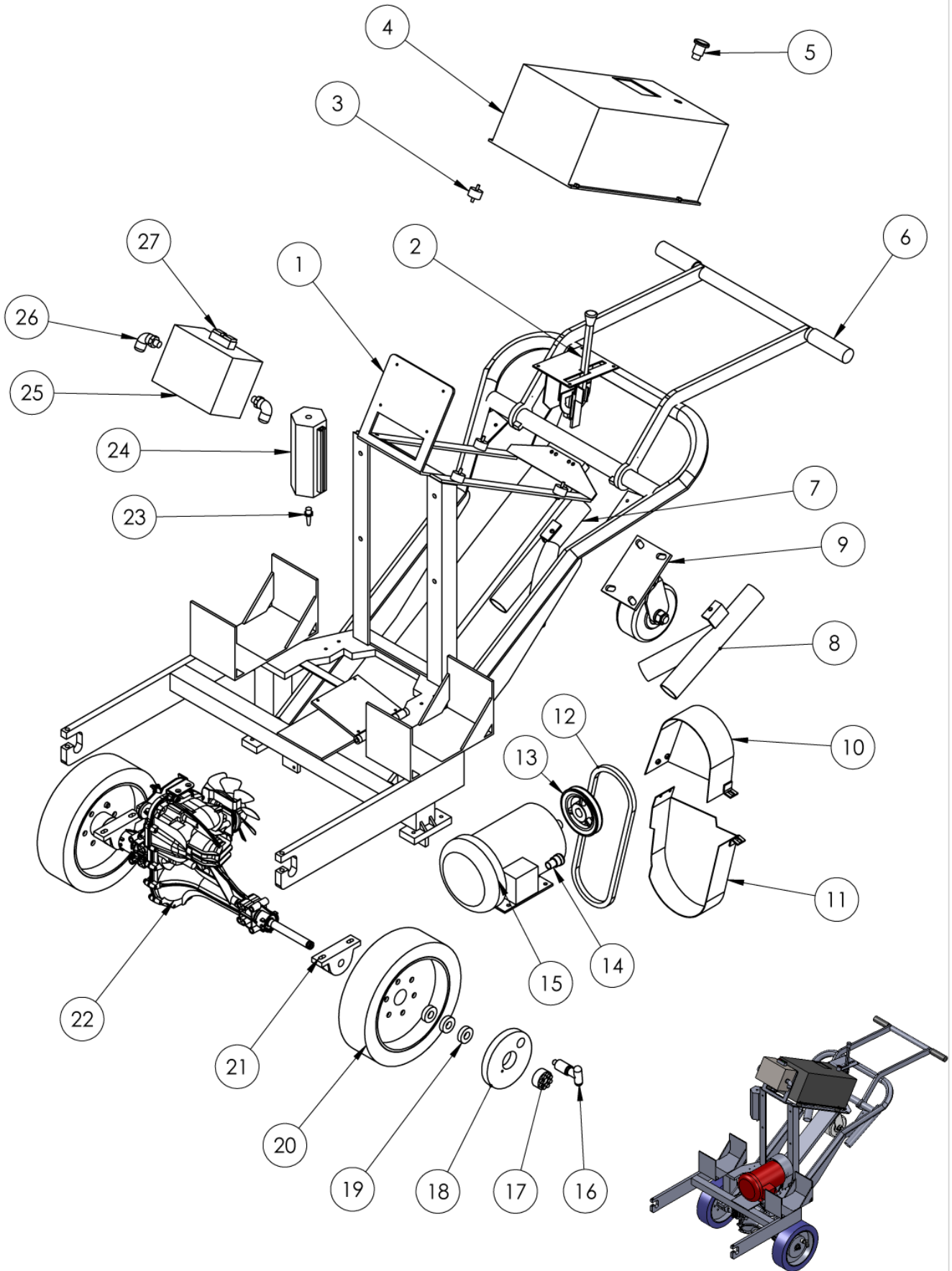
GEAR BOX & HANDLE ASSEMBLY 3100 SERIES



Model 3100 Parts List

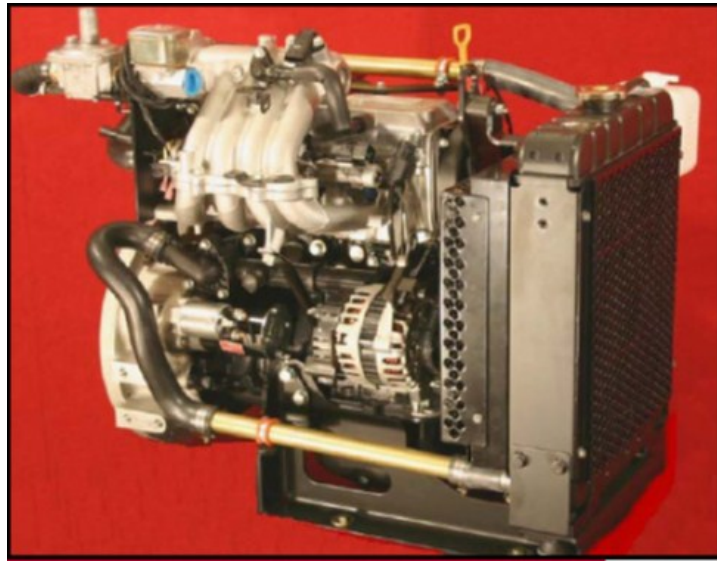
Ref. #	Part #	Description	Qty	Ref. #	Part #	Description	Qty
1	FE146	25 HP Motor (Electric)	1	49	2038	Capscrew	4
	FE165	LP Motor	1	50	HB88A	Caster Wheel	1
2	2142	Capscrew	4	51	1030	1/4" Lockwasher	15
3	2140	Lockwasher	8	52	2003	1/4" Nut	8
4	X85	Cord Connector	2	53	FEN1B	Handle Assembly	1
5	2111	Mounting Ring Bolts	4	54	LW76	Emergency Stop	1
6	FE130HS	Motor Mounting Plate	1	55	FE142-230	Starter 230 V	1
7	FE5B	Pinion	1		FE142-460	Starter 460 V	
8	FE114	Motor Key	1	56	X84	Bracket	4
9	3011	Machine Screw	16	57	FE251	Rubber Mount	4
10	2118	Grease Fitting	4	58	FE32B	Water Tank	1
11	FE27	Bearing Cap	4	59	DS5	Wheel Cap	2
12	2008	Lock Nut	12	60	DS7	Wheel Assembly	2
13	SM43	Bearing Cone	4	61	FE20B	Wheel Shaft	2
14	SM37	Bearing Cup	8	62	FD90	Spring Washer	2
15	2139	Capscrew	4	63	FE32B	Pivot Bolt	2
16	2140	Lockwasher	8	64	FE246	Pocket Weight - 42lb.	4
17	FE101	Capscrew	7	65	FE247R	Lower Weight Basket	1
18	SM255	Lock Washer	12		FE247L	Lower Weight Basket	1
19	2027	Washer	7	66	2018	Capscrew	3
20	1025	Capscrew	20	67	SM182	Spring	1
21	1022	Lockwasher	36	68	FD43	Guide Bracket	1
22	2099	Capscrew	16	69	SM186	Spacer	1
23	HB25	Washer	16	70	2082	Set Screw	1
24	FE125B	Drive Gear (electric)	2	71	FE78	Water Tank Rod	1
	FE6	Drive Gear (LP)	2	72	SM174	Water Valve	1
25	FE4B	Driven Gear RH	2	73	FE189	Valve Stem	2
26	SM16	Gear Shaft	4	74	FS39	Water Hose	
27	SM72	Gear Key	4	75	SM172	Hose Bracket Clamp	1
28	2012	Key	4	76	2082	Cotter Pin	1
29	FEN17	Grease Vent Assy	1	77	FE79	Water Valve Lever	1
30	SM15	Driven Gear LH	2	78	2101	Lock Nut	2
31	FE2F	Gear Case Cover	1	79	FE248	Upper Weight Basket	2
32	FD40	Dowel Pin	6	80	FE29	Guard Straps	
33	FE1C	Gear Case	1			Parts Not Pictured	
34	FE21	Stationary Guard	1		SM448	Battery Box (LP only)	1
35	SM171	Capscrew	16		SM432	Battery (LP only)	1
36	2027	Lock Washer	16		FE207	Vacuum Hose	12'
37	SM36	Bearing Cone	4		SM424	50 Amp Male Plug	1
38	SM169	Grease Seal	4		SM 425	50 Amp Connector	1
39	SM500	Driving Spider	4		FE262	Rubber Dust Seal	1
40	1007	Lockwasher	14		LW78	Brush Strip	2
41	1033	Capscrew	16		FE141	4-4 Cable, feet-230 V	100
42	FEN9	Splash Guard Lock Nut	2		DS134	6-4 Cable, feet-460 V	100
43	FE153	Splash Guard Bolt	2		FE266	Vacuum Pipes	2
44	SM88	Morfex Coupling	4		SM489	60 Amp Plug	1
45	SM192B	Stone Spider Plug	4		SM490	60 Amp Plug	1
46	FR594	Plug Stone	12				
47	FEN010	Movable Splash Guard Assy.	1				
48	SM57	Handle Grips	2				

MODEL 3100 HANDLE BAR



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	FEN 028	HANDLE BAR - 3100	1
2	FE 307	CONTROL ASSEMBLY	1
3	FE 251	VIBRATION MOUNT	4
4	FE 276	VARIABLE SPEED DRIVE - 25 HP - 460V	1
	FE 279	VARIABLE SPEED DRIVE - 25 HP - 230V	
5	LW 076	EMERGENCY STOP	1
6	SM 057	HANDLE GRIP	2
7	SM 457	Y-PIPE RH	1
8	SM 457LH	Y-PIPE LH	1
9	HB 088B	CASTER	1
10	FE 474	UPPER BELT GUARD	1
11	FE 475	LOWER BELT GUARD	1
12	FE 294	V-BELT	1
13	FE 293	PULLEY	1
14	X-81	STRAIGHT CORD CONNECTOR	3
15	FE 292	2 HP MOTOR	1
16	FE 291	PULL PIN	2
17	FE 285	KEYLESS LOCKING HUB	2
18	FE 280	AXLE DRIVE PLATE	2
19	FE 290	WHEEL BEARING	6
20	FE 267	SELP PROPELLED WHEEL	2
21	FE 287	PILLOW BLOCK	2
22	FE 284	TRANSAXLE	1
23	T3047	HOSE BARB	1
24	FE 289	EXPANSION TANK	1
25	SM 113-SMALL BOX	ENCLOSURE	1
	T6010	CONTACTOR	1
	T6110	OVERLOAD	1
26	X-80	90 DEG CORD CONNECTOR	3
27	SM 091-BUTTON	START/STOP BUTTON	1

MODEL 3100 LP ENGINE



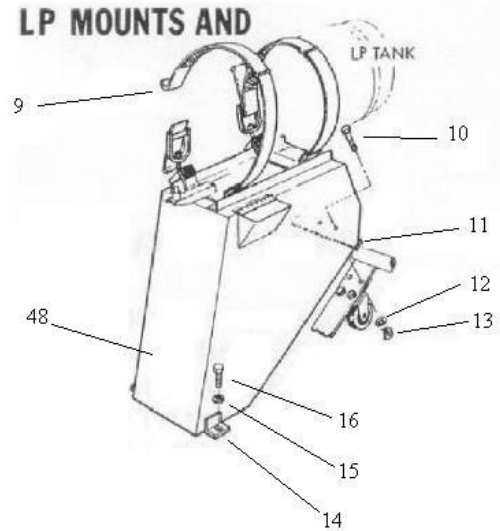
General Engine Specifications:

Intermittent Output	38 HP @ 3600 RPM
Continuous Output	34 HP @ 3600 RPM
Peak Torque	55 ft-lbs @ 3600 RPM
Fuel	Liquid Propane
Engine Configuration	4 Cylinder In-Line, SOHC
Block Material	Cast Iron
Head Material	Cast Aluminum
Bore x Stroke (in)	2-5/8 x 2-7/8
Total Piston Displacement	999 cc
Compression Ratio	9.7 : 1
Length x Width x Height (in)	19 x 20-1/2 x 26-1/2
Dry Weight	185 lbs.
Catalyst	Remote Mounted

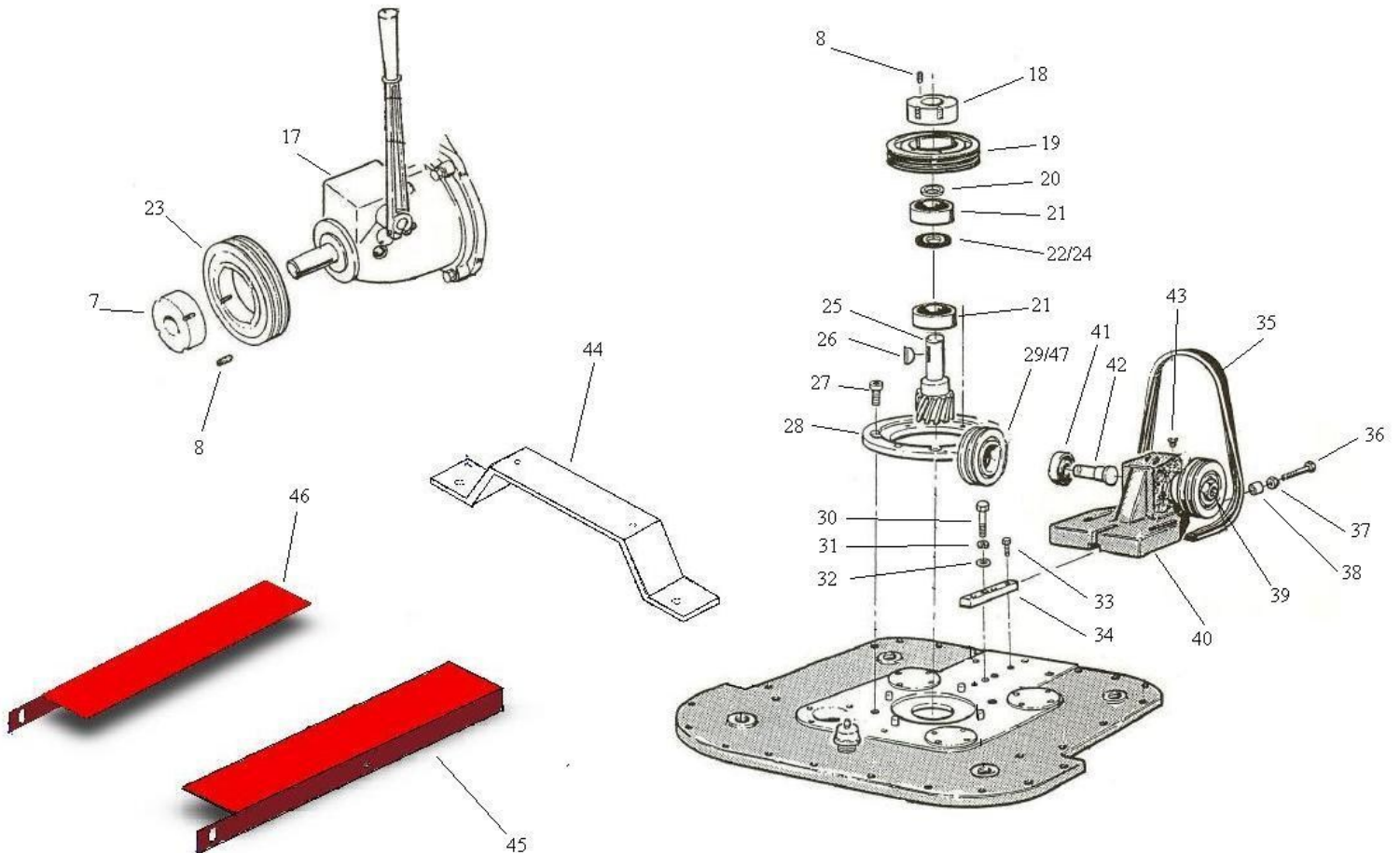
MODEL 3100 LP ENGINE



LP MOUNTS AND



1	ZENITH ENGINE
2	OIL FILTER
3	AIR FILTER
4	OIL DRAIN HOSE
5	MUFFLER
6	LP GAS FILTER



MODEL 3100 LP PARTS LIST

REF #	PART #	DESCRIPTION	QTY
1	FE165B	ZENITH 36 HP, LP ENGINE	1
2	FE315	OIL FILTER	1
3		AIR FILTER	1
4	FE312	OIL DRAIN HOSE	1
5		MUFFLER	1
6	FE316	LP GAS FILTER	1
7	FD132	BUSHING	1
8	FE100	SET SCREW	8
9	FEN14A	LP TANK BRACKET & BASE ASSEMBLY	1
10	T2038	CAPSCREW	4
11	FE74	WATER TANK BRACE	1
12	T1030	1/4" LOCK WASHER	2
13	T2003	1/4" NUT	2
14	FE133A	WATER TANK BRACKET	2
15	T1007	LOCK WASHER	2
16	T1006	CAPSCREW	2
17	FE154A	CLUTCH ASSEMBLY	1
18	FD133	TAPER LOCK BUSHING	1
19	FE52	SHEAVE	1
20	FD77	PULLEY SPACER	1
21	FD115	BEARING	2
22	FD122	FELT WASHER	1
23	FD131	ENGINE SHEAVE	1
24	FD78	BEARING SPACER	1
25	FE66C	PINION RH	1
26	T1008	KEY	1
27	T2111	MOUNTING RING BOLTS	4
28	FE303	PINION BASE	1
29	FE216	SNAP RING	2
30	FE101	CAPSCREW	3
31	SM255	LOCK WASHER	3
32	T2027	WASHER	3
33	T2081	CAPSCREW	3
34	FD100	KEY BRACKET	1
35	FE302	BELT	1
36	FE88	IDLER ADJUSTING SCREW	1
37	T2101	LOCKING NUT	1
38	RT17	SPACER	1
39	T2008	LOCK NUT	2
40	FE211	IDLER BRACKET	1
41	FE215	BEARING	2
42	FE213	IDLER SHAFT	2
43	T3021	SET SCREW	2
44	FE296	MOTOR MOUNT	1
45		BELT GUARD LH	1
46		BELT GUARD RH	1
47	FD129A	SHEAVE	2
48	FE300	WATER TANK	1

WARRANTY CLAIM PROCEDURE

Each new machine is covered by two separate, distinct warranties—one on the machine and one on the electric motor of gasoline engine. Read VERY CAREFULLY the Terrco[®] warranty covering the machine, as this will tell you whether you have a warranty claim or not. If your machine is under warranty and malfunctions, determine whether your problem is electrical or mechanical, and do the following:

I. Electrical.

- A. Consult the list of authorized motor repair stations sent with the machine and locate the station nearest you.
- B. Contact the repair station, giving them the following information:
 - 1. Complete nameplate date from the motor.
 - 2. Tell them that the machine is a terrazzo grinding and polishing machine.
 - 3. Give them a description or rundown of the trouble.
 - 4. Inform them of the voltage and amperage readings

II. Mechanical

- A. Contact your Terrco[®] Distributor giving them the following:
 - 1. Model and date purchased.
 - 2. Horsepower.
 - 3. Accurate description of the malfunction.
- B. If there is no Terrco[®] Distributor in your area call or write to us with the above information.

LIMITED ONE YEAR WARRANTY

TERRCO[®], Inc. warrants the original purchaser of the Terrco[®] grinding equipment to be free from defects in materials and workmanship under normal use and service. Our obligation under this warranty shall be limited to the repair or exchange of any part or parts which may prove defective under normal use and service within one year from date of purchase by, the original purchaser, and which our examination shall disclose to our satisfaction to be defective.

All equipment returned for repairs or exchange must be returned to: TERRCO[®], Inc., at the purchaser's expense and within the warranty period. All repaired or exchanged equipment will be shipped back to the purchaser F.O.B. Watertown, South Dakota.

THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED INCLUDING THE WARRANTIES OR MERCHANTABILITY AND FITNESS FOR USE AND ALL OTHER OBLIGATIONS OR LIABILITIES ON THE PART OF TERRCO[®], INC. AND WE NEITHER ASSUME OR AUTHORIZE ANY OTHER PERSON TO ASSUME FOR US, ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THIS EQUIPMENT. SOME STATES DO NOT ALLOW THE EXCLUSIONS OR LIMITATIONS ON IMPLIED WARRANTIES OR DO NOT ALLOW THE EXCLUSION OF LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSIONS OR LIMITATIONS MAY NOT APPLY TO YOU. THIS WARRANTY SHALL NOT APPLY TO ANY EQUIPMENT OR PART THEREOF WHICH HAS BEEN SUBJECT TO ACCIDENT, NEGLIGENCE, ALTERATIONS, ABUSE, MISUSE, OR IMPROPER MAINTENANCE. TERRCO[®], INC. MAKES NO WARRANTIES WHATSOEVER IN RESPECT TO ACCESSORIES OR PARTS NOT MANUFACTURED OR SUPPLIED BY US.