

# Instruction Manual

*for*

**POWER  HAND<sup>®</sup> 2X**

## Marathon System

Controller: **Marathon**

Handpiece: **PHP35**

Variable Foot Rheostat: **TPF-77**

**#510-2946, 510-2956**



## 1. Marathon Controller

The Gesswein Power Hand 2X Marathon Controller features a Voltage Selector Switch that allows operation at either 110V or 220V. Please check the Selector Switch to ensure it is set at the proper Mains AC voltage.

Handpiece speed is controlled by the Dial Rheostat or Variable Foot Rheostat. Before first use, run the handpiece at half speed without load for 30 minutes to properly break it in for smooth operation. It is recommended to turn the unit OFF before changing handpiece rotation direction.

### Front Panel

#### A. Main Power Switch

#### B. Power ON and Overload Indicator Lamp.

Turns green when Main Power Switch is ON, red when handpiece overloads. To reset, turn Main Power Switch OFF then back to ON.

#### C. Direct/Remote Switch.

Set to HAND when controlling handpiece speed by Dial Rheostat. Set to FOOT when using the Variable Foot Rheostat.

#### D. Forward/Reverse Switch.

Handpiece runs counterclockwise in FWD, clockwise in REV. Turn Main Power Switch OFF before changing handpiece rotation direction.

#### E. Handpiece Receptacle.

For Handpiece PHP35 or any Gesswein Power Hand 2X Handpiece.

#### F. Dial Rheostat.

Controls handpiece speed from minimum to maximum RPM.

## Specifications

Model	Marathon
Input Voltage	110VAC, 50/60Hz or 220VAC, 50/60Hz
Output Voltage	30V DC or 35VA
Dimensions	110mmW x 148mmD x 96mmH
Weight	1.6kg (3.5 lbs.)

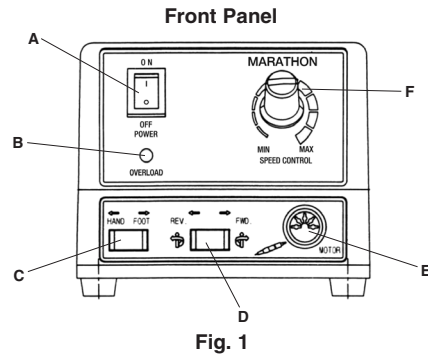


Fig. 1

### Back Panel

#### A. Variable Foot Rheostat Receptacle –

Depressing Foot Rheostat operates handpiece at any speed set on dial rheostat or from zero to maximum speed when dial rheostat is set to MAX.

**Constant Speed Feature:** Much like On/Off Foot Switch, Foot Rheostat can run handpiece at constant speed. Before beginning operation, set dial rheostat on controller to desired speed. With Direct/Remote Switch (Fig. 1, C) set to FOOT, depress Foot Rheostat fully. Speed will increase to dial setting and hold steady. For new constant speed, reset dial rheostat and depress Foot Rheostat fully. Speed will increase to new dial setting and hold steady.

#### B. Voltage Selector Switch –

Ensure switch is set at proper Mains AC Voltage.

#### C. AC Power Cord and Plug

#### D. Ventilation Vents

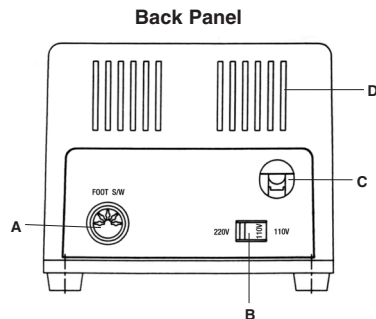


Fig. 2

## 2. PHP35 Handpiece

Handpiece PHP35 is supplied with a collet and a Test Pin. When not using the handpiece, leave the Test Pin or a tool in the collet to keep it in good condition.

### Changing Tools

PHP35 has a quick-tool-change mechanism for rapid tool changes. To change tools, turn the Collet Release Ring fully to the “R” release position (fig. 3) until a “click” sound is heard. The collet is then fully open and ready to accept a tool.

To secure the tool, turn the Collet Release Ring to the “S” secure position. Again, a “click” sound will be heard, indicating the collet is fully closed and the tool is secure.

**\*Do not turn the Collet Release Ring while the handpiece is running as damage may occur and the tool can fly loose from the collet.**

### Collet Removal

To change collets, turn the Collet Release Ring fully to “R,” place the triangular cutout of the Collet Wrench over the collet (fig. 4), and turn counterclockwise to loosen or clockwise to tighten. Tighten the collet with the Collet Wrench until just tight.

A tight collet can be loosened by placing the wrench over the collet and tapping the wrench with a solid tool (fig. 5).

If the above procedures do not loosen a tight collet, then the HandCap must be removed. To do so, put the Collet Release Mechanism in the “S” position, hold the handpiece in one hand, and turn the HandCap counterclockwise until it separates from the handpiece (fig. 6). The Coil Spring (Part 114) should remain in the Collet Release Ring.

Insert the Chuck Joint Wrench fully into the Connector (Part 122), hold the HandCap and Chuck Joint Wrench in one hand, and with the Collet Wrench in place on the collet, loosen by turning the Wrench counterclockwise. Tighten the collet by turning the Collet Wrench in a clockwise direction until just tight.

### Replacing HandCap

To replace the HandCap, screw it into the Collet Release Ring in a clockwise direction until fully seated.

### Check for Proper Collet Installation

Turn the Collet Release Mechanism to “S,” and rotate the collet by hand. If the collet does not rotate freely, it is not fully seated in the Joint Shaft (Part 122). Repeat the collet removal-replacement procedure.

### Replacement of Carbon Brushes

PHP35 uses a spring tension-type carbon brush assembly (a pair of brushes is supplied with the Marathon). Expected brush life is 800-1,000 hours. Worn brushes should be replaced when the handpiece no longer runs at maximum speed or sounds as though it is “running out of gas.” It is important that both brushes be replaced at the same time. Replacement of only one carbon brush will cause motor damage. To replace worn brushes, unscrew the Carbon Housing Cover (Part 174) in a clockwise direction (fig.7). Using a small Phillips Screwdriver, unscrew each brush assembly. The brush tension spring will push the assembly out of the brush well so it can be lifted clear. The two new carbon brushes should be installed by gently pushing them into the brush well. Screw the assembly in securely, and replace the Carbon Housing Cover.

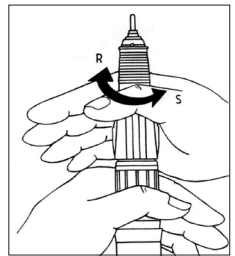


Fig. 3

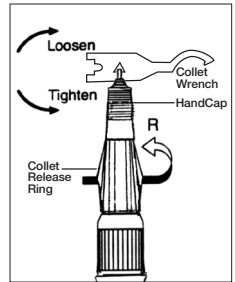


Fig. 4

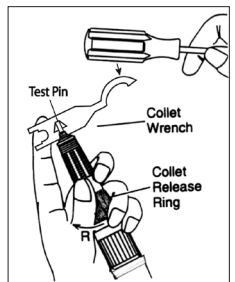


Fig. 5

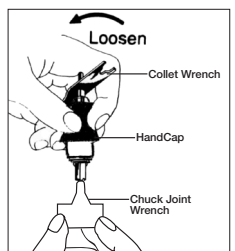


Fig. 6

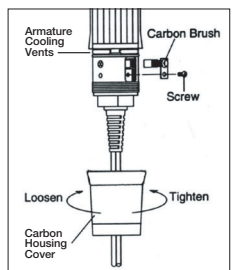


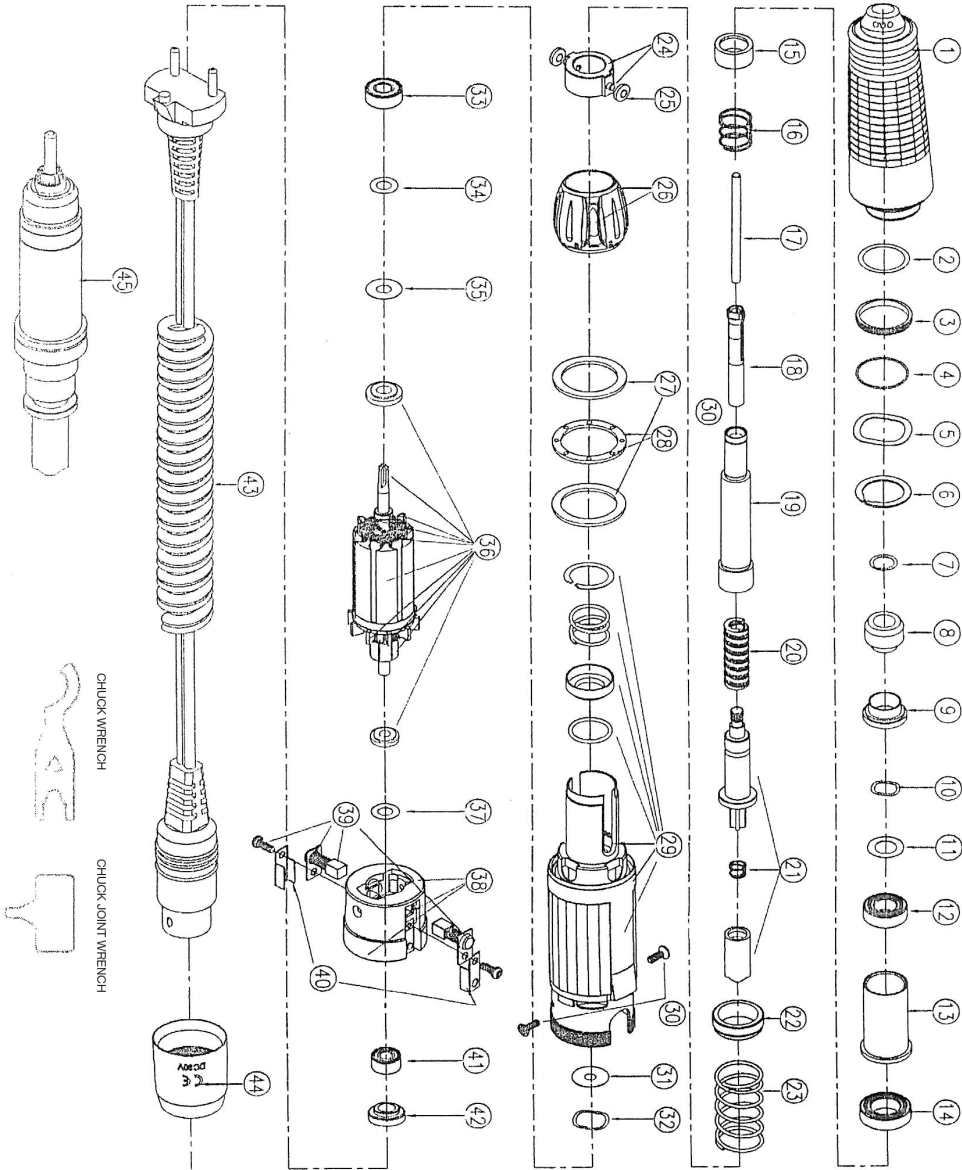
Fig. 7

3. Parts List

When ordering parts, always specify Item# and description.

PHP35

No.	Item#	Part#	Description
1	896-0483	PHP35-2-101	HAND CAP COVER
2	896-0484	PHP35-3-401	HAND CAP WASHER
3	896-0485	PHP35-5-402	HAND CAP O-RING SLEEVE
4	896-0486	PHP35-7-403	HAND CAP O-RING
5	896-0487	PHP35-3-405	HAND CAP WAVE WASHER
6	896-0488	PHP35-3-404	HAND CAP C-RING
7	896-0489	PHP35-3-104	CHUCK HOUSING C-RING
8	896-0490	PHP35-5-105	COLLAR
9	896-0491	PHP35-5-106	BEARING FIX WASHER
10	896-0492	PHP35-3-107	1260 WAVE WASHER
11	896-0493	PHP35-3-111	1260 WASHER
12	510-3074		BALL BEARING (1260ZZ)
13	896-0494	PHP35-5-112	BUSH
14	510-3072	510-3072	BALL BEARING (1480ZZ)
15	896-0495	PHP35-2-113	SPRING SHEET
16	896-0496	PHP35-6-114	COIL SPRING
18	510-0100		COLLET CHUCK (Dia. 2.35mm)
	510-0106		COLLET CHUCK (Dia. 3.0 mm)
	510-0105		COLLET CHUCK (Dia. 3.175 mm)
	896-0497	PHP35-5-115	CHUCK HOUSING C-RING
20	896-0498	PHP35-6-118	CHUCK SPRING
21	896-0499	PHP35-5-122	JOINT SHAFT
22	896-0500	PHP35-5-124	BEARING BUSH COLLAR
23	896-0501	PHP35-6-125	BEARING BUSH COLLAR COIL SPRING
24	896-0502	PHP35-4-128	ROLLER BODY
25	896-0503	PHP35-4-130	ROLLER GUIDE
26	896-0504	PHP35-2-131	SET RING
27	896-0505	PHP35-3-133	SLIDE WASHER
28	896-0506	PHP35-2-134	SLIDE BODY
29	896-0507	PHP40-5-141	MOTOR CASE
30	896-0508	PHP35-8-205	MOTOR CASE BOLT
31	896-0509	PHP35-3-144	COPPER WASHER
32	896-0510	PHP35-3-145	1030 WAVE WASHER
33	510-3073		BALL BEARING (1030ZZ)
34	896-0511	PHP35-3-149	1030 COPPER WASHER
35	896-0512	PHP35-3-150	1030 TEFLON WASHER
36	896-0513	PHP40-2-209	ARMATURE ASSEMBLY
37	896-0514	PHP35-3-001	TEFLON WASHER
38	896-0515	PHP35-2-172	BEARING HOUSING
39	896-0516	PHP35-4-164	CARBON BRUSH SET (2 PCS.)
40	896-0517	PHP35-3-266	TERMINAL (L&R)
41	510-3073		BALL BEARING (1030ZZ)
42	896-0518	PHP35-5-468	BEARING BUSH BOLT
43	896-0519	PHP35-6-173	MOTOR CORD
44	896-0520	PHP35-2-17	CARBON HOUSING COVER
45	896-0521	PHP35-1-115	SPINDLE ASSEMBLY
46	510-0180		CHUCK WRENCH
47	510-0179		CHUCK JOINT WRENCH



## 4. Precautions

- A.** Before operating the Marathon, be sure that the Voltage Selector Switch is set to the voltage you will be running the unit from.
- B.** Use Marathon in a suitable location in temperature of 32-104°F (0-40°C). Using it in an excessively dusty, warm or humid location can damage the controller.
- C.** Ensure the controller ventilation vents are not obstructed.
- D.** Before operating the handpiece, be sure the Collet Release Ring is in the “S” secure position. If the handpiece is in the “R” release position, the motor will stall and could possibly be damaged.
- E.** Do not attempt to change tools or rotate the Collet Release Ring while the handpiece is running. This action will stop the motor abruptly, causing damage of parts and possible motor damage.
- F.** Avoid stalling the motor by pushing too hard on the workpiece or exceeding the torque capacity of the handpiece motor. This will cause excessive carbon brush and motor armature commutator wear.
- G.** Do not exceed the maximum rotation speed (RPM) specified by the manufacturer/distributor of the tool being used.
- H.** Handpiece collets are manufactured to close tolerances. Use tools with a shank size that corresponds to the collet being used.
- I.** Insert a tool fully into the collet until it bottoms the back of the collet. Using a tool not fully inserted is dangerous and can cause the tool to vibrate or the tool shank to bend.
- J.** Never use tools out-of-round or with bent shanks.
- K.** Periodically check to see that the collet is fully tightened. A loose collet will cause the handpiece to run slower.
- L.** Do not use the handpiece in water or oil, and never allow any oil, water or other fluids to enter the handpiece. Avoid having dirt or excessive wood dust enter the inner casing. Failure to keep foreign matter out of the inner casing will cause damage to the ball bearing assemblies. See Maintenance (next page) for cleaning instructions.
- M.** Before operating the Forward/Reverse Selector Switch turn the controller to OFF. Make the selection, then turn the unit back ON.
- N.** Take care not to drop the handpiece. Handpiece bearings may be damaged and tool shanks bent.
- O.** To avoid electric shock, never plug or unplug the Power Cord with wet hands.
- P.** Do not subject the handpiece cord to sharp bending or rough treatment. This can create an open wire or damage the cord connection pins.
- Q.** While operating the handpiece, wear protective safety glasses or goggles at all times. Eyewear should meet ANSI Z87.1 and GSA Z94.3 standards.
- R.** When not in use, put the handpiece in the rubber cradle rest. It is also recommended to put a tool or Test Pin in the collet when not using the handpiece.

## 5. Maintenance

Ensure the Marathon controller ventilation vents (black panel) are not covered or obstructed. If compressed air is available, use it on the vents. If air is not available, blow into the vents and use a soft, dry brush to remove excess dust.

Periodically remove excessive dust that accumulates in the Carbon Housing Cover (Part 174). To remove this dust, unscrew the Cover in clockwise direction. Blow air into the Cover and the Armature Cooling Vents (fig. 7). Dust can also be removed with a soft, dry brush. If necessary, use a clean cloth moistened with detergent to clean the Carbon Housing Cover inside and out. Do not use any volatile liquid as a cleaner (i.e., paint thinner or alcohol).

Periodically cleaning the inner threads of the handpiece collet will ensure easy collet removal when changing from one to another. Twist a clean rolled-up piece of tissue paper in and out of the collet threads.

Do not lubricate your handpiece. All handpiece bearings are sealed and permanently lubricated.

Contact Gesswein for assistance in the event of a fault or needed repair. Gesswein offers a standard mechanical handpiece warranty of 90 days for parts subject to wear and 6 months for the balance of the handpiece. The controller is covered by a full one-year warranty from date of purchase.