

TM 9-4910-644-14&P

TECHNICAL MANUAL

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
(INLCUDING REPAIR PARTS LIST)**

FOR

LIGHT, IGNITION TIMING

PN 7710

(HYDRAULIC TECHNOLOGY, INC.)

(NSN 4910-00-255-1449)

**HEADQUARTERS, DEPARTMENT OF THE ARMY
JULY 1981**

**OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL
(INCLUDING REPAIR PARTS LIST)**

FOR

LIGHT, IGNITION TIMING

PN 7710

(NSN 4910-00-255-1449)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual direct to: Commander, US Army Armament Materiel Readiness Command, ATTN: DRSAR-MAS, Rock Island, IL 61299. A reply will be furnished direct to you.

NOTE

This manual is published for the purpose of identifying an authorized commercial manual for the use of the personnel to whom this timing light is issued.

Manufactured by: HYDRAULIC TECHNOLOGY, INC.
9725 Lurline Avenue
Chatsworth, CA 91311

Procured under Contract No. DAAA09-77-C-6178

This technical manual is an authentication of the manufacturers' commercial literature and does not conform with the format and content specified in AR 310-3, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

INSTRUCTIONS FOR REQUISITIONING PARTS

NOT IDENTIFIED BY NSN

When requisitioning parts not identified by National Stock Number, it is mandatory that the following information be furnished the supply officer.

- 1 - Manufacturer's Federal Supply Code Number - 29516
- 2 - Manufacturer's Part Number exactly as listed herein. PN 7710
- 3 - Nomenclature exactly as listed herein, including dimensions, if necessary.
- 4 - Manufacturer's Model Number - Model
- 5 - Manufacturer's Serial Number (End Item)
- 6 - Any other information such as Type, Frame Number, and Electrical Characteristics, if applicable.
- 7 - If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50.

Complete Form as Follows:

(a) In blocks 4, 5, 6, list manufacturer's Federal Supply Code Number - 29516 followed by a colon and manufacturer's Part Number for the repair part.

(b) Complete Remarks field as follows:

Noun: (nomenclature of repair part)
For: NSN: 4910-00-255-1449
Manufacturer: Hydraulic Technology, Inc.

Model:
Serial: (of end item)

Any other pertinent information such as Frame Number, Type, Dimensions, etc.

TECHNICAL MANUAL

INSTRUCTIONS AND PARTS BREAKDOWN

1-1. GENERAL.

This manual is the basic publication covering the operation, maintenance and parts breakdown for the Light, Ignition Timing, 4910-00-255-1449, PN 7710.

1-2. DESCRIPTION.

The timing light is a battery operated portable device which is completely self contained in a steel case and cover assembly. All of the operating components are mounted on the removable front panel. The unit is normally shipped without batteries. Overall dimensions are 8 by 4-1 2 by 2-1 2 inches deep.

1-3. PREPARATION FOR USE.

Prior to initial use, fresh batteries must be installed. For battery installation see paragraph 1-10.

1-4. PURPOSE OF EQUIPMENT.

The timing light is used to indicate the point of opening of the breaker points in a magneto or other ignition system. The timing light is a dual device and may be used to time a single magneto system or to time and synchronize the points of a dual magneto system. The instant of opening of the points is indicated by the extinguishing of neon glow lamps.

1-5. OPERATING INSTRUCTIONS.

Place switch to the ON position, both neon lamps will glow. Momentarily short each red (positive) lead, in turn, to the black (negative) lead. This will extinguish its respective neon lamp and indicate proper operation.

1-6. TO TIME A MAGNETO.

a. Connect the black lead to the magneto housing ground. Connect either red lead to the breaker points primary terminal. Switch ON.

b. One neon lamp will glow when the points are open and will be extinguished when the points close. As the engine is rotated in the proper direction, the lamp will remain off during the dwell period and come on at the instant the breaker points open.

1-7. TO SYNCHRONIZE TWO (2) MAGNETOS OR A SECOND SET OF BREAKERS IN A DUAL MAGNETO.

a. Following the same procedure as paragraph 1-6, connect the other red lead to the primary of the other magneto or second set of points.

- b. Crank or rotate magneto breaker cam slowly.
- c. When both sets of points of the magneto are open, both indicator lamps will glow. When one set of points closes, the one corresponding lamp goes out.
- d. While rotating the magneto slowly, if both lamps glow at the same time and conversely if both go out at the same time, the magneto points being checked are properly synchronized.
- e. IMPROPER TIMING of the points is indicated when the two lamps do not glow at the same time while the magneto cam is being rotated. An adjustment must be made on the points to bring the lamps into synchronization.

Refer to the applicable TM for correct breaker point adjustment procedures. With instrument hooked up, proceed with point adjustment until proper synchronization is accomplished.

1-8. TO CONSERVE BATTERIES.

Always switch OFF and close cover when not in use.

1-9. MAINTENANCE INSTRUCTIONS.

Replace batteries if the neon lamps do not glow brightly or do not light. There are no periodic maintenance requirements.

1-10. BATTERY REPLACEMENT.

- a. Remove the two knurled screws at the back of unit. Remove panel by sliding it forward toward the lead storage and lifting it out.
- b. Replace the three D cells in the battery holder, the red polarity caps provide the proper polarization. Replace the panel and the two hand screws.

1-11. LAMP REPLACEMENT.

Remove lamps by unscrewing from the front of the panel. Replace with neon lamps type NE45 only.

1-12. OSCILLATOR TRANSFORMERS.

The oscillator transformers are mounted to the front panel and may be replaced as a set of two. Remove the front panel and the transformer mounting screws, refer to the circuit schematic for the wire color coding.

1-13. LUBRICATION.

There are no lubrication requirements for this unit.

1-14. CALIBRATION.

There are no calibration requirements for this unit.

1-15. TROUBLESHOOTING.

The following is a table of the troubles which may be encountered, their probable causes and remedies.

TROUBLE	PROBABLE CAUSE	REMEDY
Neon lamps do not glow.	Defective battery Defective neon lamps Defective oscillator Defective switch	Replace batteries. Replace lamps. Replace oscillator transformers. Replace switch.
Neon lamps glow but do not go out when black and red leads are connected together.	Defective red or black test leads Defective oscillator	Repair or replace test leads. Replace oscillator transformers.

1-16. ADDITIONAL DATA.

Additional copies of this publication may be obtained through normal DA distribution channel from the following address: Commander, U.S. Army Publication Center, 1655 Woodson Rd. St. Louis, MO. 63114. Reproduction for non-military use of the information or illustrations contained in this publication is not permitted. The policy for military use reproduction is established for the Army in AR 380-5, for the Navy and Marine Corps in OPNAVINST 5510.1B, and for the Air Force in AFR 205-1.

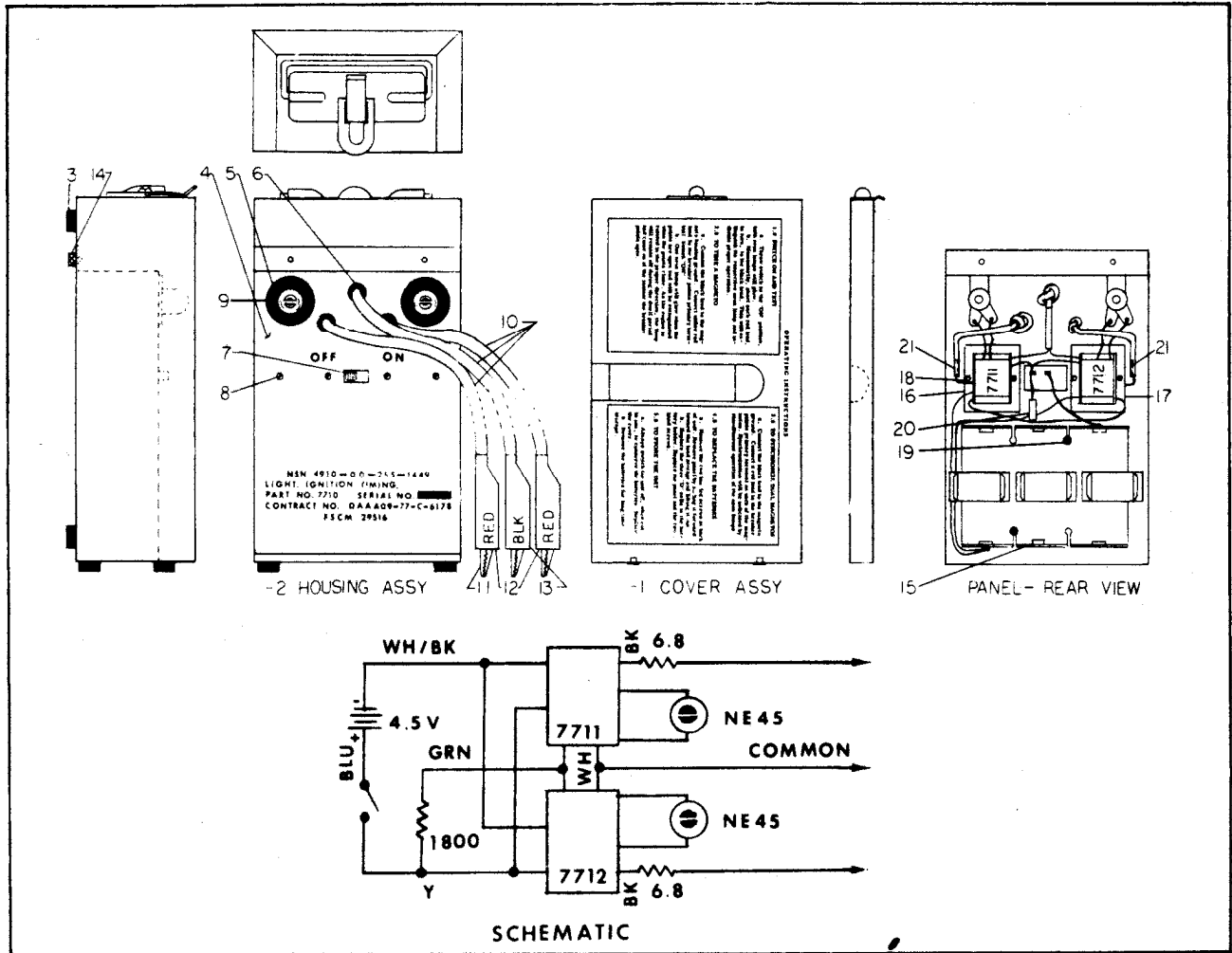


Figure 1. Light, Timing Ignition PN 7710

FIG & INDEX NO.	PART NO.	DESCRIPTION	UNITS PER ASSY.							USABLE ON CODE	
			1	2	3	4	5	6	7		
1-	7710	LIGHT, Timing, Ignition (29516)								1	
1-1	7720	. COVER, Assy. (29516)									1
1-2	7721	. HOUSING, Assy. (29516)									1
1-3	7722	. . BUMPER, Rubber. (29516)									8
1-4	7724	. PANEL (29516)									1
1-5	7725	. . GROMMET, Rubber (29516)									2
1-6	7726	. . GROMMET, Rubber (29516)									3
1-7	7729	. . SWITCH (29516)									1
1-8	2-56 X 7/8	. . SCREW, Round Head, zinc plated									4
1-9	7715	. . LAMP, Neon, type NE45 (29516)									2
1-10	7719	. . LEAD, Test, 300 volt neoprene (29516)									3
1-11	7716	. . CLIP, Alligator (29516)									3
1-12	7717	. . INSULATOR, Clip, Red (29516)									2
1-13	7718	. . INSULATOR, Clip, Black (29516)									1
1-14	8-32 X 1/4	. . SCREW, Knurled, Panel retaining									2
1-15	7727	. . HOLDER, Battery (29516)									1
1-16	7711	. . TRANSFORMER-OSCILLATOR, Assy. (29516)									1
1-17	7712	. . TRANSFORMER-OSCILLATOR, Assy. (29516)									1
1-18	2-56	. . NUT, Hexagon, Zinc plated									6
1-19	7732	. . RIVET, Tubular, Nickel plated (29516)									2
1-20	7713	. . RESISTOR, 1800 Ohms, 1/2 watt									1
1-21	7714	. . RESISTOR, 6.8 Ohms, 1/2 watt									2

By Order of the Secretary of the Army:

E. C. MEYER
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Brigadier General, United States Army
The Adjutant General

Distribution:

To be distributed in accordance with Special List.

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

Your mailing address

DATE SENT

Date you fill out form

PUBLICATION NUMBER

TM 9-4910-644-14&P

PUBLICATION DATE

15 Jul 81

PUBLICATION TITLE Maintenance Manual
for Light, Ignition Timing

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.	PARA-GRAPH	FIGURE NO.	TABLE NO.
5			

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

In parts list, part No. for aligator clip is missing. What is part no.?

SAMPLE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

JOHN DOE SP/4 XXX-XXXX

SIGN HERE:

John Doe

DA FORM 2028-2
1 JUL 79

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

TEAR ALONG PERFORATED LINE

FILL IN YOUR
UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD 314



TEAR ALONG PERFORATED LINE

Commander
US Army Armament Materiel Readiness Command
ATTN: DRSAR-MAS
Rock Island, IL 61299

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN, JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 9-4910-644-14&P

PUBLICATION DATE

15 Jul 81

PUBLICATION TITLE Maintenance Manual
for Light, Ignition Timing

BE EXACT ... PIN-POINT WHERE IT IS

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

FILL IN YOUR
UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD 314



TEAR ALONG PERFORATED LINE

Commander
US Army Armament Materiel Readiness Command
ATTN: DRSAR-MAS
Rock Island, IL 61299

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 9-4910-644-14&P

PUBLICATION DATE

15 Jul 81

PUBLICATION TITLE Maintenance Manual

for Light, Ignition Timing

BE EXACT. PIN-POINT WHERE IT IS

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE AND TELEPHONE NUMBER

SIGN HERE:

DA FORM 2028-2
1 JUL 79

PREVIOUS EDITIONS ARE OBSOLETE.

P.S.—IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

FILL IN YOUR
UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD 314



TEAR ALONG PERFORATED LINE

Commander
US Army Armament Materiel Readiness Command
ATTN: DRSAR-MAS
Rock Island, IL 61299

RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS



THEN... JOT DOWN THE DOPE ABOUT IT ON THIS FORM. CAREFULLY TEAR IT OUT. FOLD IT AND DROP IT IN THE MAIL!

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)

DATE SENT

PUBLICATION NUMBER

TM 9-4910-644-14&P

PUBLICATION DATE

15 Jul 81

PUBLICATION TITLE Maintenance Manual
for Light, Ignition Timing

BE EXACT PIN-POINT WHERE IT IS

PAGE NO.

PARA-GRAPH

FIGURE NO.

TABLE NO.

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

TEAR ALONG PERFORATED LINE

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER

SIGN HERE:

FILL IN YOUR
UNIT'S ADDRESS

FOLD BACK

DEPARTMENT OF THE ARMY

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE \$300

POSTAGE AND FEES PAID
DEPARTMENT OF THE ARMY
DOD 314



TEAR ALONG PERFORATED LINE

Commander
US Army Armament Materiel Readiness Command
ATTN: DRSAR-MAS
Rock Island, IL 61299

