A.A.R. TIGHTLOCK COUPLER INSTRUCTIONS GOVERNING OPERATION, INSPECTION AND MAINTENANCE

GENERAL

All A.A.R. tightlock couplers in service may be divided into three general classes as follows:

1. The original design, now known as the "T" type coupler. There are comparatively few of these couplers in service, the majority having been converted into Class 2, and it is urgently recommended that all remaining "T" type couplers be modified in accordance with Mechanical Committee Circular No. 942-A as promptly as possible. These couplers can be identified by the shape of the locklift lever as well as the size and shape of the telltale hole in the locklift toggle as shown in Figure 1. The operating mechanism used with these couplers is either the A.A.R. type No. 3, No. 4 or No. 5. The A.A.R. type No. 6 mechanism cannot be used until the couplers are modified. Manufacture of the "T" type tightlock coupler, with exception of parts for maintenance was discontinued, effective January 1, 1945.
2. The modified "T" type coupler. These are the original "T" type couplers which have been modified in accordance with Mechanical Committee Circular No. 942-A. As a part of this modification these couplers are fitted with knuckles, locks and locklift assemblies of a different design than those used with the non-modified coupler. Aslo, after conversion, only the A.A.R. type No. 6 coupler operating mechanism can be used. The locklift lever in these couplers, is somewhat similar in appearance to that used in the type "H" coupler but these couplers can be identified by the presence of a telltale hole in the toggle as shown in Fig. 2.
3. The type "H" coupler, now the A.A.R. standard for passenger equipment cars. The type "H" coupler has no telltale hole in the toggle but instead an inverted "U" recess is provided in the bottom edge on both sides of the lock hole shroud of the coupler head as shown in Fig. 3. The No. 6 type coupler operating mechanism only is used with this coupler.

COUPLING

1. Coupling with Tightlock Couplers

   When coupling two tightlock couplers, either or both knuckles may be open, except on curves, when both knuckles should be open.

2. Coupling with Other Types

   When coupling a tightlock coupler with any other type of coupler, close the knuckle of the tightlock coupler and open the knuckle of the engaging coupler.

3. Examination for Proper Coupling

   After every coupling a careful examination should be made to be certain that each tightlock coupler is properly locked, otherwise parting of the train may occur in service.

   A telltale indication is provided in all tightlock couplers to determine when they are properly locked.

   In the "T" type coupler the indicating means is a telltale hole in the locklift toggle as shown in Figures 1 and 2.

   The coupler is safely locked only when this entire hole can be seen beneath the coupler head as shown in the photograph, Figure 4.

   In all type "H" couplers the indicating means is a telltale recess, which is an inverted "U" shaped notch located in the lower edge of both side walls of the lock hole shroud, as shown in Figure 3. This coupler is safely locked only when this recess is clear and unobstructed as shown in photograph, Figure 5.

INSPECTION AND MAINTENANCE

1. Leveling of Couplers

   Tightlock couplers must be maintained in a level position on the coupler carrier to insure satisfactory coupling. A simple check for levelness of the coupler may be made by suspending a weighted string against the machined front face of the coupler head when the car is on a reasonably level track. When it becomes necessary to restore a coupler to level position, adjustment should be made to the carrier to bring the coupler to level or substantially level position. This may be accomplished by the addition of shims on the coupler carrier face in

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INSPECTION AND MAINTENANCE (Continued)

event no other method of adjustment is provided in the carrier design. Excessive shimming should be avoided as the necessary vertical movement of the coupler will be restricted. For the same reason, when couplers are level, no shimming should be done in this location to adjust coupler height.

2. Cleaning

The inside of the coupler head should be frequently inspected and kept free of dirt or other foreign matter. This cleaning should be done by dry air blast or other suitable means.

3. Lubricants, Paints, etc.

The inside of the coupler head, the coupler operating parts, and the machined surfaces of the coupler contour must be kept free of any lubricant or paint.

4. Coupler Operating Mechanism

The tightlock coupler operating mechanism should be maintained in good condition and should operate freely at all times. With the A.A.R. type No. 6 operating mechanism, which is used with the "T" modified and the "H" couplers, it is important that proper clearance be provided and maintained between the operating rod eye and the locklift lever as described in Figure 6.

5. Interference with Coupler Operation

Steam and train lines, and other supports or attachments, must not interfere during train operation with the coupler, coupler operating parts or the coupler operating mechanism.

6. Periodic Maintenance Procedures

All tightlock couplers in service should be periodically checked for the following conditions to insure satisfactory coupling and operation in service:

(a) Correctness of Contour

Contour maintenance gage No. 31000 should be used as indicated in Fig. 7. In some cases it may be found that the contour is too tight to permit passing the gage through the contour as required. This condition should not be encountered in the "T" type of "T" type modified couplers as the T50B knuckle used provides 1/16" relief on the pulling face. A contour adjustment, to relieve this condition has also been made in all type "H" couplers produced since August, 1946. When such contour tightness is encountered, the lock should be reduced in thickness, as described in paragraph 7, an amount slightly more than needed to seat the lock on the shelf. This will result in a slight looseness of the lock but in no case should this looseness be sufficient to permit entrance of a 1/64" feeler between the tapered surface of the lock and knuckle tail.

(b) Distortion of Aligning Wings and/or Guard Arm

Aligning wing limit gage No. 32600 should be used as indicated in Fig. 8. Couplers which do not meet the requirements of this gage should be removed from service until adjustments have been made in accordance with procedure in Mechanical Committee Circular No. 5147 covering Reclamation of A.A.R. Tightlock Couplers.

(c) Anticreep Protection

The anticreep protection in type "T" modified and type "H" couplers is the amount of overlap between the top of the locklift toggle and the anticreep shoulder on the underside of the knuckle tail. To determine the amount of effective anticreep protection present, insert a small flat bar or chisel between the lock and knuckle tail shelf and pry the lock upward and at the same time force the lock leg rearwardly by inserting another similar bar between the lock leg and the front of the lock hole as shown in Fig. 11. The amount of overlap can then be determined by inspection through the front of the coupler, or, if preferred, a line may be scribed on top of the toggle along the rear face of the knuckle tail shelf and a measurement then taken from the line to the front edge of the toggle and parallel to its side as shown in the enlarged view, Fig. 13. When the overlap is 3/8" or less, correction should be made by replacing (1) the locklift assembly, (2) the lock, (3) the knuckle. Usually replacement of the locklift assembly is sufficient but in some cases further benefit is obtained by the renewal of the lock and/or the knuckle.

INSPECTION AND MAINTENANCE (Continued)

7. Adjusting Lock Height

In all tightlock couplers the locks should be seated not more than 1/8" above the knuckle tail shelf, but should preferably be seated on the shelf. When adjustment is necessary metal should be removed from the guard-arm (non-tapered) side of the lock by grinding or preferably by machining. The amount of metal to be removed is one-eighth the distance the lock is to be lowered. For example, if the lock is 1/8" above the shelf and it is to be seated on the shelf the amount of metal to be removed from the lock face is one-eighth of 1/8" or 1/64".

8. Sticking of Locks

In the event a lock becomes stuck it should be released by tapping upward on the bottom of the lock leg. No hammering should ever be done on any part of the locklift assembly as this may cause distortion and result in faulty operation of the coupler. Sticking of locks can be relieved by reducing the thickness of the lock, as described in paragraph 7, an amount sufficient to seat the lock on the knuckle tail shelf.

9. Free Slack in Contour

For the reason that development of free slack in the contour of a tightlock coupler may be considered objectionable by some railroads, a limit of 3/8" increase in the dimension from the front face of the coupler to the nose of the knuckle has been established. This figure approaches the limit beyond which full interlock protection would no longer exist between two tightlock couplers when angled sufficiently to take up the contour clearance. There would still be ample protection against a slip-by of knuckles even when coupled to a conventional coupler having a contour at or near the permissible A.A.R. worn limit.

(a) To determine when the 3/8" limit has been reached use gage No. 34100-1 as shown in Figure 9. When the coupler contour exceeds the limit of this gage, the knuckle should be removed and replaced with a new knuckle. If this substitution does not bring the coupler within the limits of this gage, then the fault is probably in the coupler head and should be investigated further. The knuckle removed should be checked with the nose wear and stretch limit gage No. 34100-2, shown in Figure 10, and if the limits of this gage are reached, indicating wear and/or stretch of 1/4" or more, the knuckle should be condemned.

10. Proper Repair Parts and Interchangeability of Parts

(a) Proper Repair Parts

In the following tabulation the proper repair parts for the various tightlock couplers are indicated by reference to standard catalog number:

Part	T Type Coupler	T Type Modified Coupler	Standard H Coupler
Knuckle	T50, T50A, T50B	T50B only	H50, H50A, H50B
Lock	T40A (See Note)	T40B	H40, H40A
Knuckle Thrower	T30	T30	H30, H30A
Locklift Lever, Single	T8A (See Note)	T13A	H13A
Locklift Lever, Double	T8A (See Note)	T14A	H14A
Locklift Toggle	T9A (See Note)	T9C	H9A
Locklift Assembly, Single	T11B (See Note)	T15A	H15A
	T8A and T9A	T9C and T13A	H9A and H13A
Locklift Assembly, Double	T11B (See Note)	T16A	H16A
	T8A and T9A	T9C and T14A	H9A and H14A

Note: Manufacture of these parts has been discontinued.

In all cases where more than one catalog number is shown for a given part, the design having the latest suffix letter is the preferred one to use in order to derive the benefits of the latest modifications. However, the earlier designs shown can also be used but are no longer manufactured.

INSPECTION AND MAINTENANCE (Continued)

The locklifts are furnished by the standard coupler manufacturers in the form of complete assemblies only and these have been assigned catalog numbers for ordering references, which numbers do not appear on the castings. The identity of each assembly can be determined by the catalog numbers shown on the toggle and the locklift lever as shown in the tabulation.

(b) Interchangeability of Parts

The knuckle pivot pin is the only part common to all tightlock couplers. The only other parts which can be used in more than one type of tightlock coupler are the knuckle thrower, Cat. No. T30, and knuckle, Cat. No. T50B which are used in both the T type and T type modified couplers. The T50B knuckle only must be used in the T type modified coupler. If either the T50 or T50A knuckles are used in this coupler complete loss of the anti-creep protection will result.

11. Storage Under Cover

It is important that all tightlock couplers and spare parts be stored in a dry place under cover in order to prevent the machined and other close fitting surfaces from rusting. Oil or grease should not be applied as a rust or corrosion preventative. The standard coupler manufacturers are applying labels to all new tightlock couplers, coupler parts and attachments which direct attention to the importance of this protection. In event the machined or other close fitting surfaces do become rusted or accumulate dirt as a result of prolonged storage or exposure, they should be thoroughly cleaned with emery cloth, buffer or similar means before being placed in service.

12. Car or Locomotive Builders' Responsibilities

It shall be the responsibility of the car or locomotive builders, during construction, to protect tightlock couplers against entrance of any foreign matter into the coupler head.

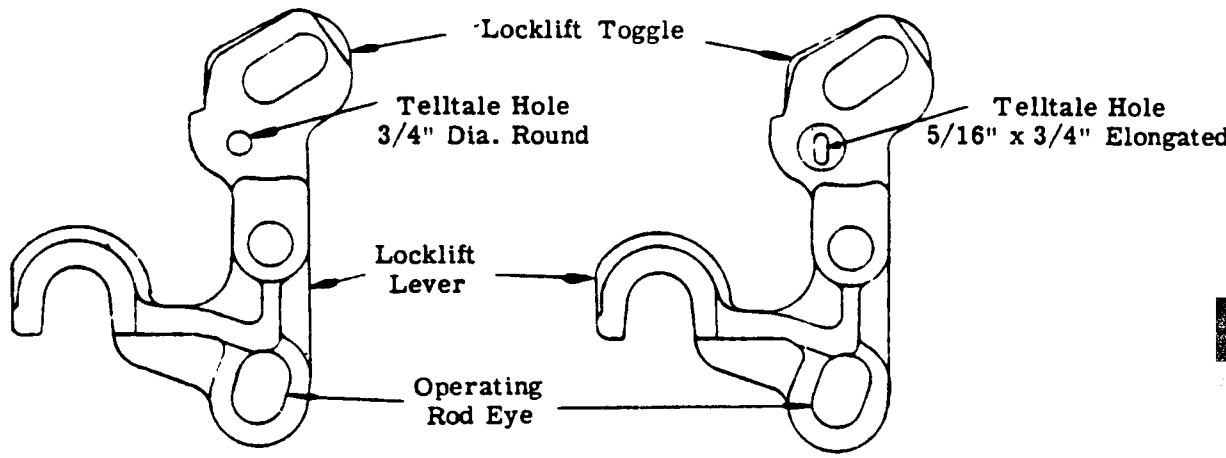
When couplers are not so protected a considerable quantity of sweepings, metal chips and other matter can and does get into the coupler head. Usually only a small portion of these accumulations are removed in final cleaning with air blast, the greater part being blown into the shank cavity and later working back into the head impairing the proper functioning of the coupler. When cars are being painted, the coupler contour and internal parts should be covered to prevent application of paint to these parts.

Cleveland, Ohio
February 1, 1949

Additional copies of this circular may be obtained from the office of the Secretary, A.A.R. Mechanical Division, or from any of the following Standard Coupler Manufacturers:

American Steel Foundries
The Buckeye Steel Castings Company
McConway & Torley Corporation
National Malleable & Steel Castings Company
The Symington-Gould Corporation
Canadian Car & Foundry Co., Ltd.
Dominion Foundries & Steel, Ltd.

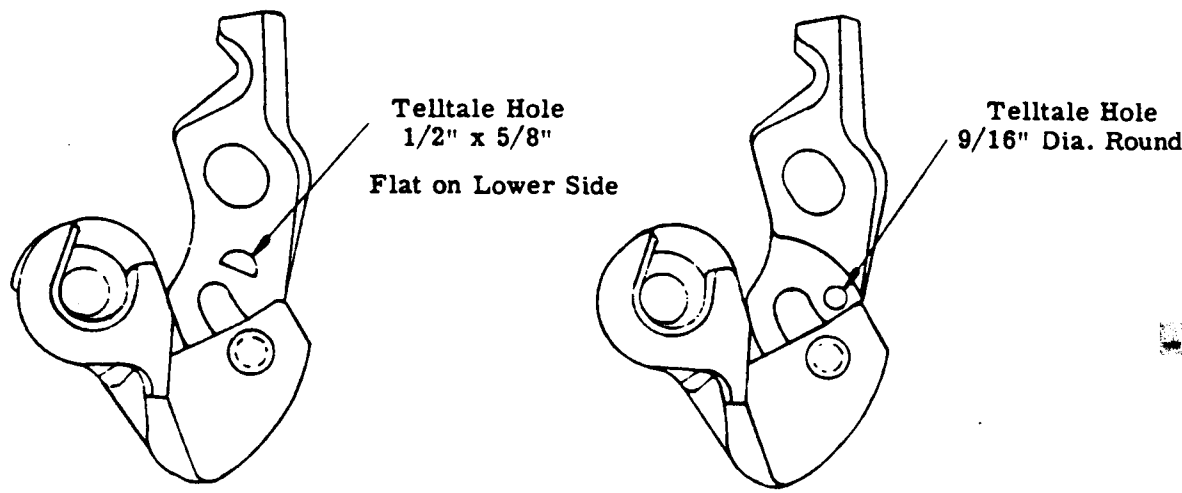
INDENTIFICATION OF LOCKLIFT ASSEMBLIES



EARLY DESIGN - CAT. No. T11 LATER DESIGNS - CAT. No. T11A AND T11B

ORIGINAL T TYPE TIGHTLOCK COUPLER LOCKLIFT ASSEMBLIES

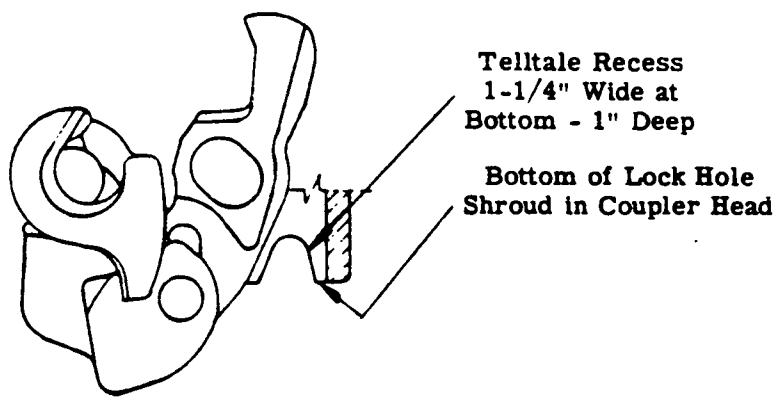
Figure 1



EARLY DESIGN - CAT. No. T15 OR T16 LATEST DESIGN - CAT. No. T15A OR T16A

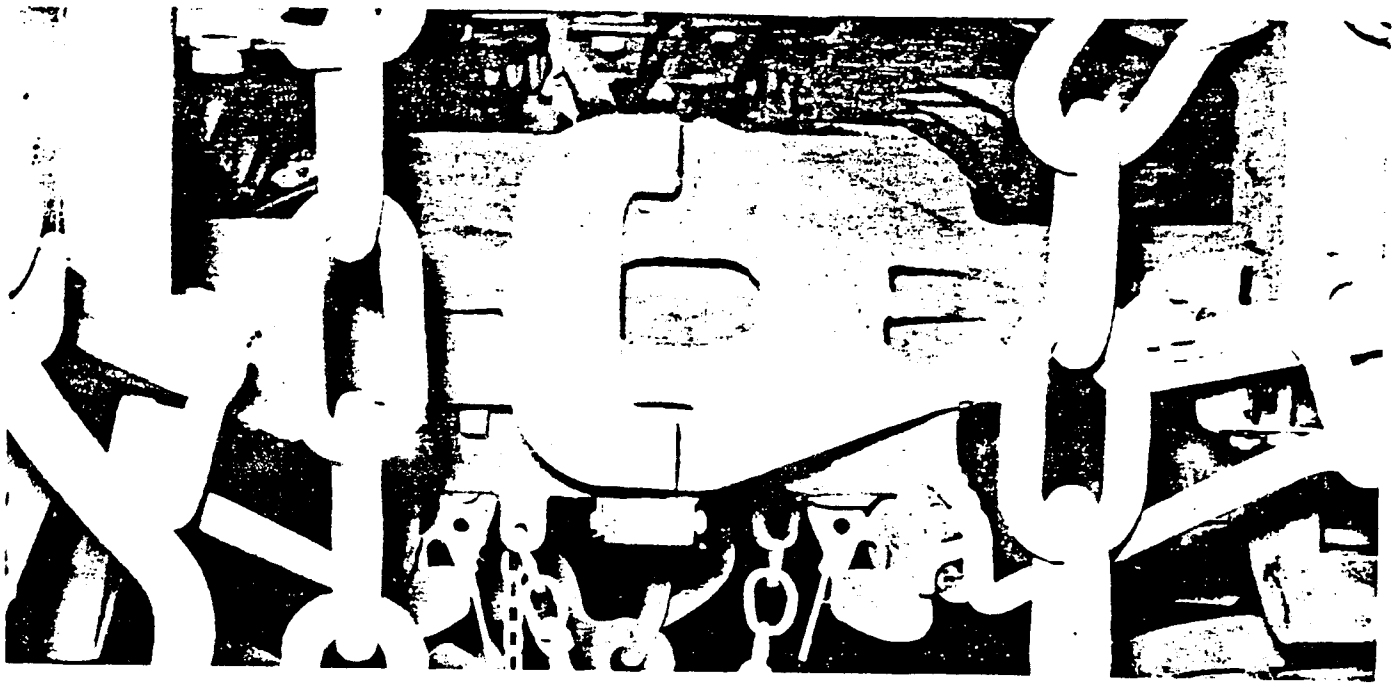
MODIFIED T TYPE TIGHTLOCK COUPLER LOCKLIFT ASSEMBLIES

Figure 2



A.A.R. STANDARD H TIGHTLOCK COUPLER LOCKLIFT ASSEMBLY - CAT. NO. H15A OR H16A

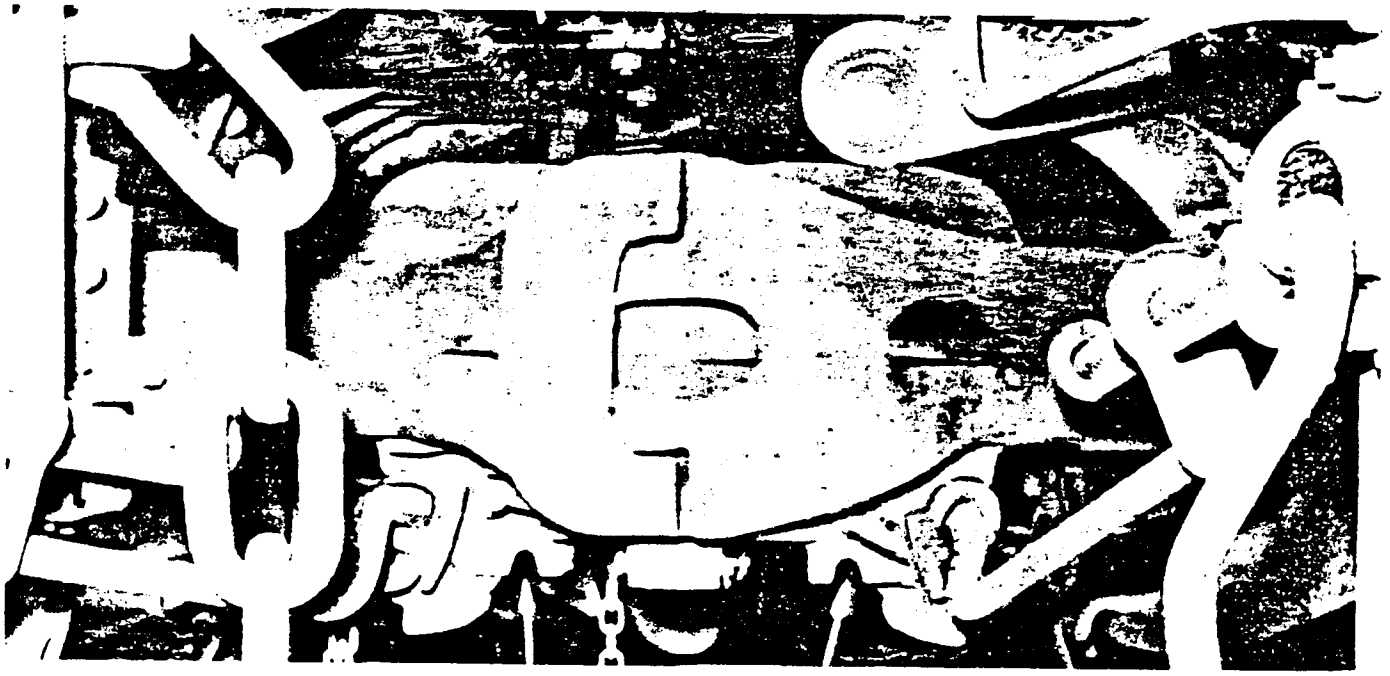
Figure 3



TELLTALE HOLE IN TOGGLE

A.A.R. T Type Modified Tightlock Couplers Satisfactorily Coupled and Locked.
Note That Telltale Hole in Toggle of Both Couplers is Fully Visible.

Figure 4

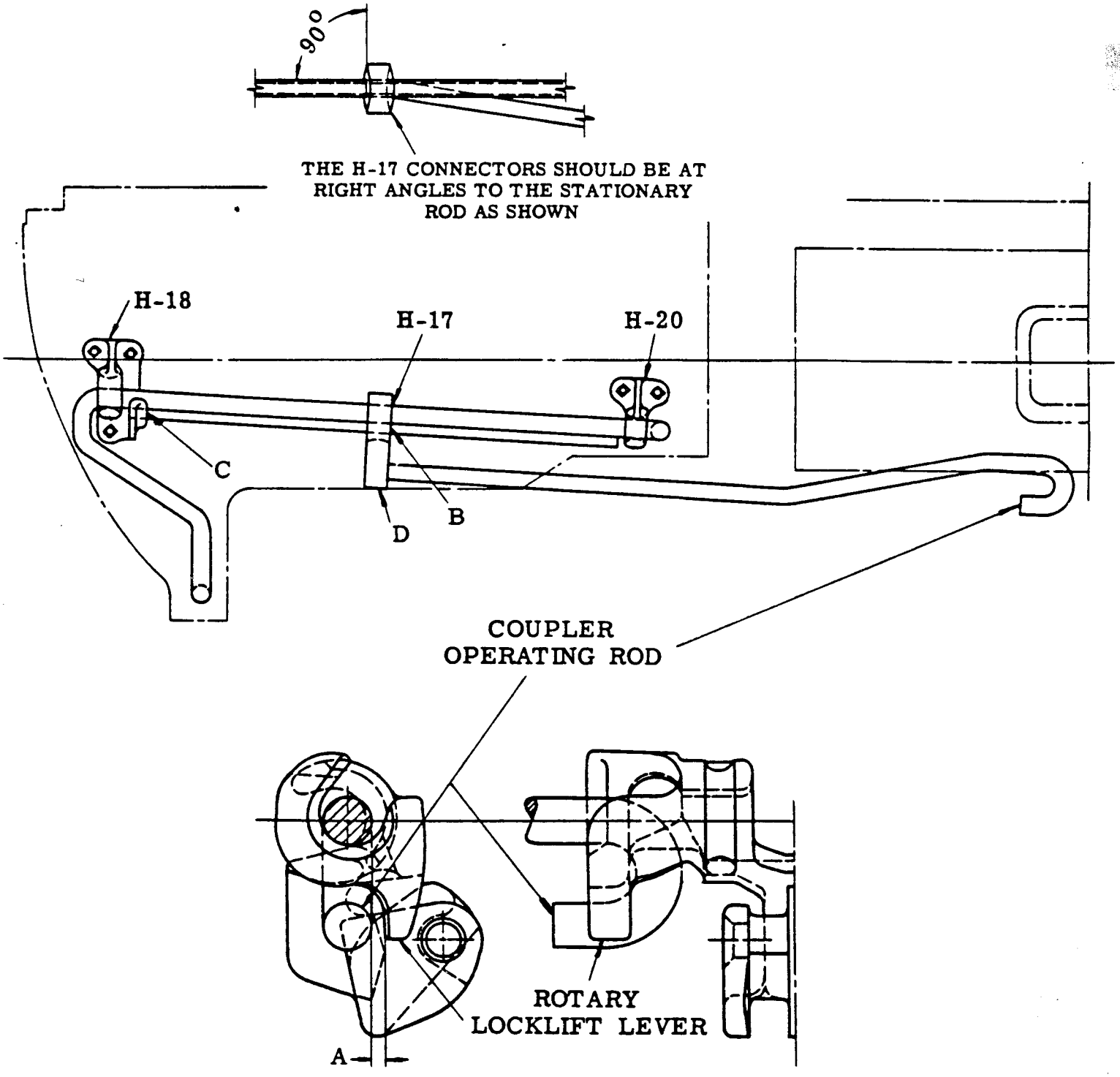


TELLTALE RECESS IN LOCK HOLE SHROUD

A.A.R. Standard H Tightlock Couplers Satsifactorily Coupled and Locked.
Note That Telltale Recess in Both Couplers is Clear and Unobstructed.

Figure 5

A.A.R. TIGHTLOCK COUPLER NO. 6 OPERATING MECHANISM



ENLARGED VIEW OF LOCKLIFT LEVER AND OPERATING ROD EYE

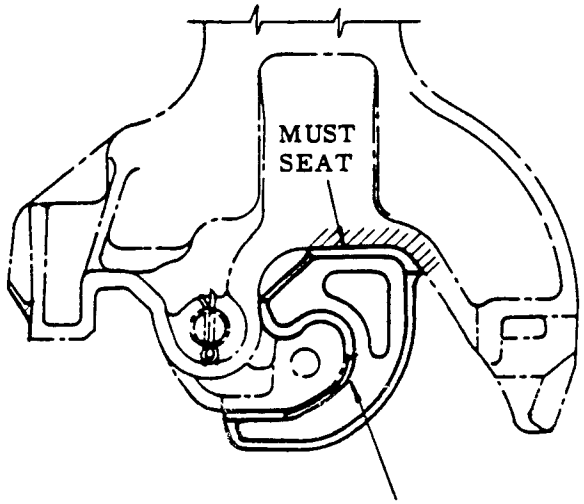
IMPORTANT - There Must Be 1/8" To 1/4" Clearance At The Closest Point Between The Operating Rod Eye And Locklift Lever At "A" Under The Following Conditions -

1. Coupler Knuckle Fully Closed And Locked.
2. Coupler Centered In The Carrier.
3. All Slack In Rods At "B" And "C" Taken Up By Pulling Forward On H-17 Connector At "D".

SAME CONDITIONS APPLY TO OPERATING ROD ON RIGHT SIDE WHEN USED

Figure 6

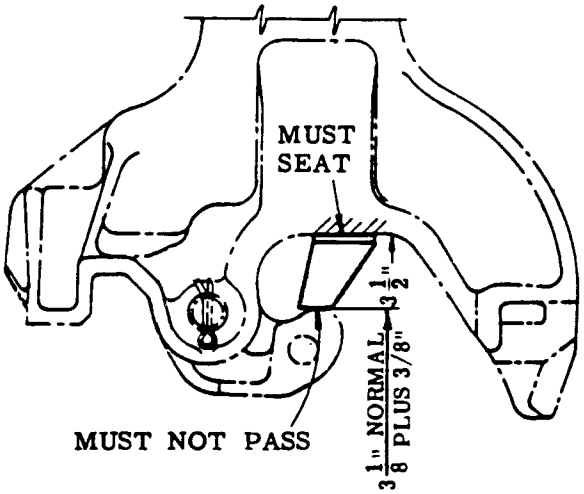
A.A.R. TIGHTLOCK COUPLER MAINTENANCE GAGES



GAGE MUST PASS THROUGH CONTOUR WITH KNUCKLE FULLY CLOSED AND LOCKED

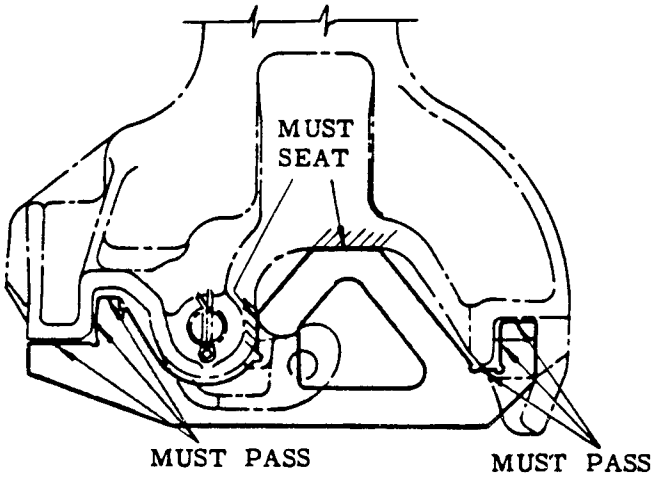
CONTOUR MAINTENANCE
GAGE NO. 31000

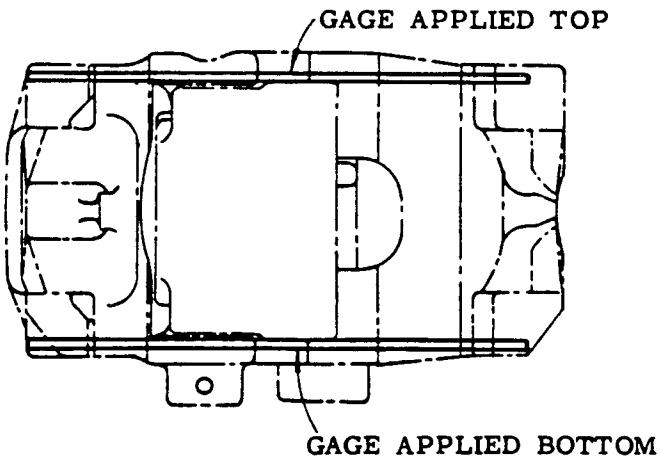
Figure 7



CONTOUR CONDEMNING LIMIT
GAGE NO. 34100-1

Figure 9

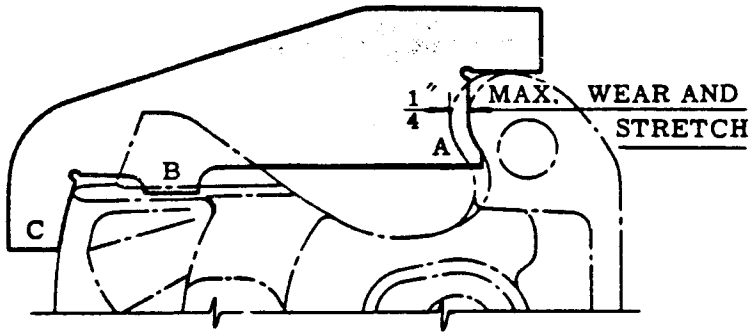




ALIGNING WING LIMIT
GAGE NO. 32600

Figure 8

KNUCKLE IS CONDEMNED IF GAGE CONTACTS AT "C" WITH "A" AND "B" SEATED



KNUCKLE NOSE WEAR AND STRETCH
LIMIT GAGE NO. 34100-2

Figure 10

INSPECTION OF ANTICREEP

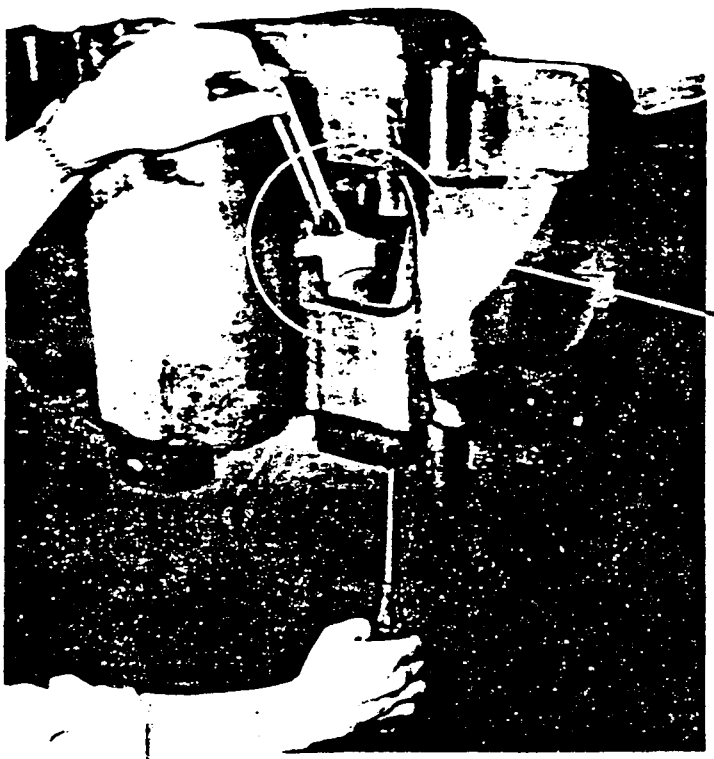


Figure 11

Method of Engaging Anticreep for
Inspection and Measurement of Overlap

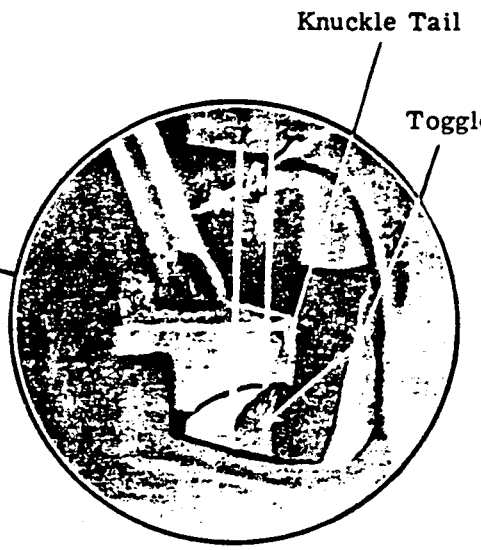


Figure 12

Method of Measuring Amount
of Anticreep Overlap

In order to check the amount of effective anticreep protection in a tightlock coupler, insert a small flat bar or chisel between the lock and the knuckle tail shelf and pry lock upward. At the same time force the lock leg rearwardly by inserting a similar bar from beneath the coupler between the lock leg and the front of the lock hole.

The amount of anticreep protection, or overlap, can then be determined by inspection thru the front of the coupler. The 3/8" minimum overlap has been reached when dimension "A", Figure 12, is 1/8" or less.

If actual measurement is desired a line is scribed on the top of the toggle along the rear face of the knuckle tail shelf and the measurement is taken from the line to the front edge of the toggle and parallel to its side, as shown in Figure 13.

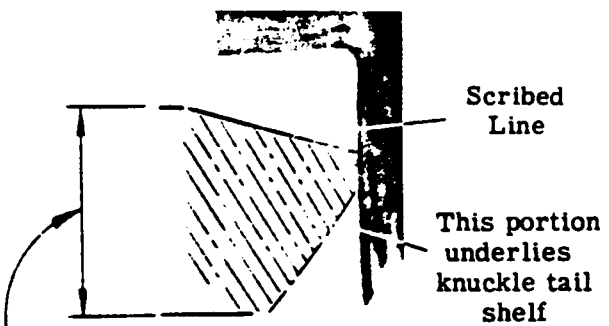


Figure 13

Enlarged View of
Top of Toggle

Anticreep Overlap
Amount nominally provided:
1-1/16" in T Modified Couplers
1-1/ 2" in Standard H Couplers
MUST NOT BE LESS THAN 3/8".