

BRITISH RAILWAYS  
LONDON MIDLAND REGION  
STANDARD MAINTENANCE INSTRUCTION

C.M. & E.E. Ref: CME/RO.92/LB/C64 C.M. & E.E., (BRB) ENG. INSTRUCTION CODE NO. WF7.	STANDING ORDER NO. FSM.20F.	
This instruction supersedes FSM.20F dated 23.4.69 which must now be destroyed.	DATE '7.1.71'.	
Units Applicable:-	LOT NOS.	VEHICLE SERIAL NOS.
All Freightliner Vehicles	VARIOUS	VARIOUS

VARIABLE LOAD VALVE SETTING.

Requirements Correct setting of variable load valve mechanism at tare condition of vehicle.

Reason To ensure correct braking effort on wagon over complete load range.

Work to be Done

1. Component Check

- 1.1. Check from sheets 1 to 8 of Appendix 'A' that the components fitted are dimensionally correct for the particular vehicle being dealt with.
- 1.2. Change components as necessary.
- 1.3. Check nylon bush of vertical rod for wear and bell crank for any "free-play".
- 1.4. Change nylon bush, or rod and tighten bell crank pivot nuts as necessary.

2. Setting

\* Note

Items 2.4 & 2.7 will not apply when setting up vehicles with FL1 bogies since these are not fitted with bolster friction wedges.

- 2.1. Apply sufficient handbrakes on the train to ensure safety of staff working on the vehicle being dealt with.
- 2.2. Isolate air brake on vehicle concerned.
- 2.3. Disconnect vertical control rod at bell crank.
- \* 2.4. Bar friction wedges downwards into bolster with special tool provided and pin in position thus allowing bolster to take up a natural position at "tare" load. (See Appendix 'B').

... Continued ...

2. Setting(Continued)

2.5 Ensure that horizontal VLV rod and forked end are set up correctly for tare condition in accordance with sketch Appendix 'C', adjusting as necessary.

2.6 Adjust forked end of vertical control rod and reconnect to bell crank.

NOTE. For control rods with slotted forked end the pin must be at the top of the slot.


\* 2.7 Bar friction wedges downwards and remove retaining pins.

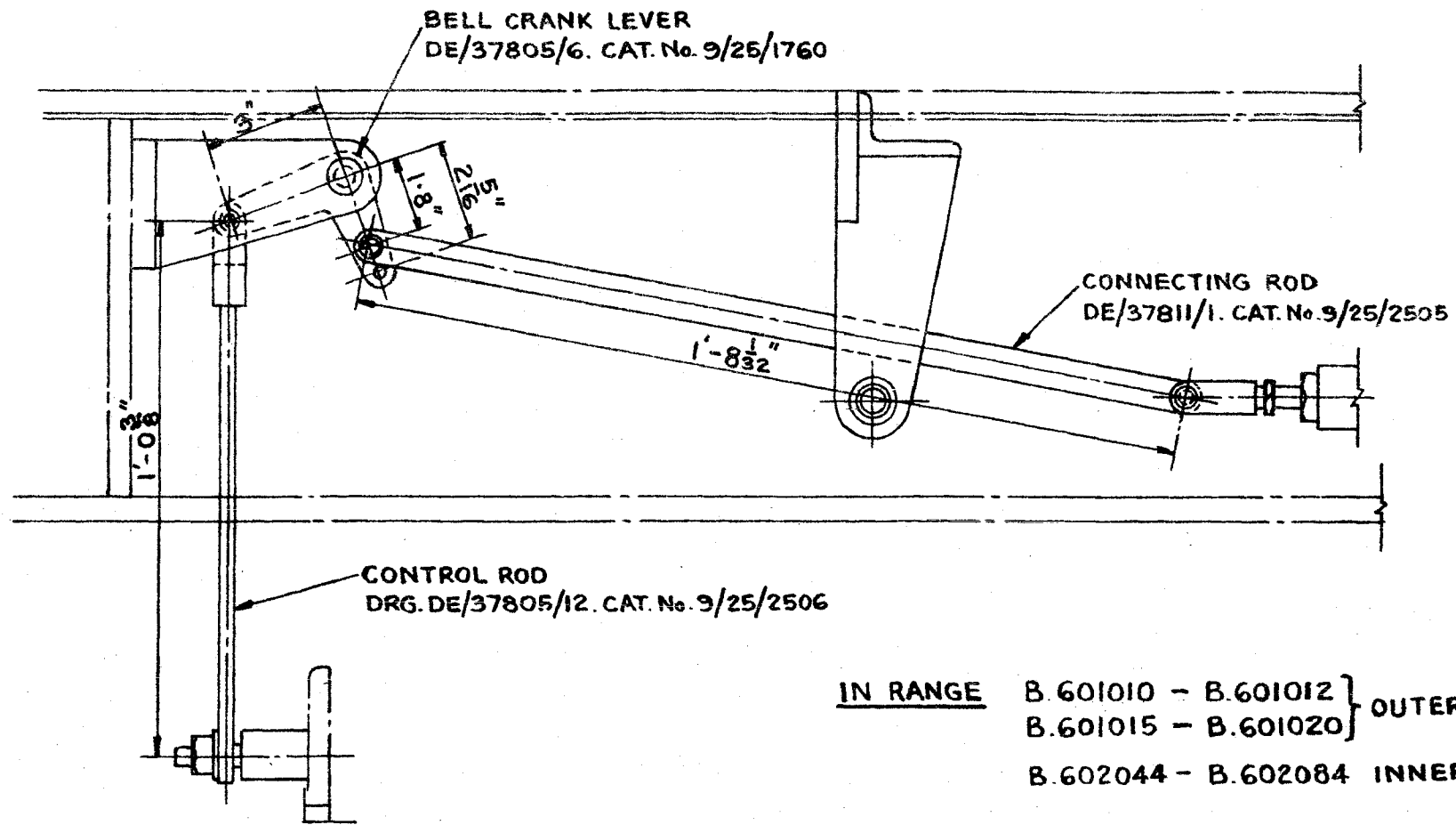
2.8 Remove the air brake isolation.

3. Testing.

3.1 Make a full service brake application and confirm that brake cylinder pressure is between 16 and 18 lbs/sq.in.

3.2 If brake cylinder pressure does not fall within these limits the variable load valve must be changed and item 2 repeated.

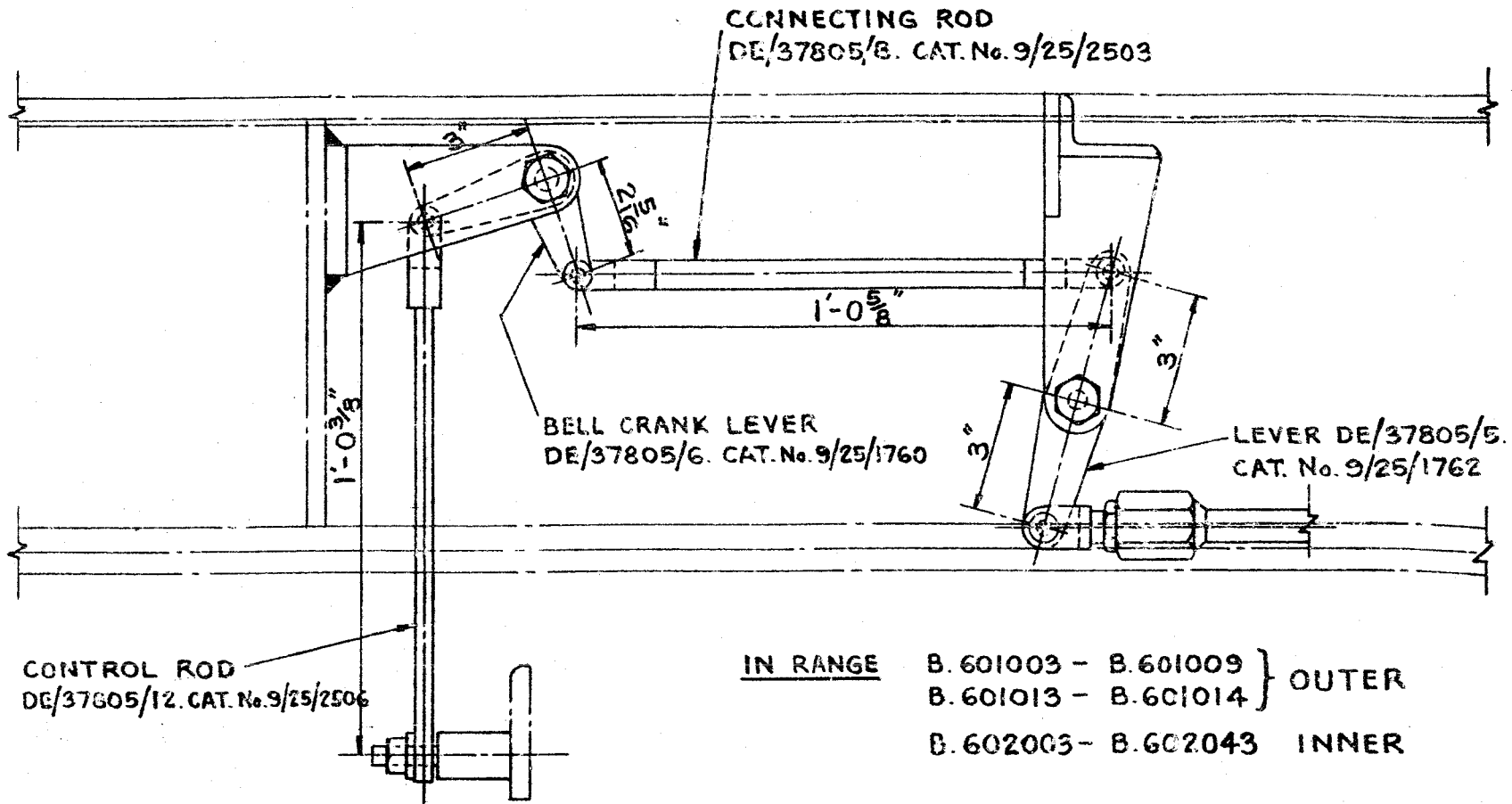
  
M & E.E.(Carriage & Wagon)  
on behalf of Chief Mechanical  
and Electrical Engineer,  
London Midland Region.



IN RANGE B.601010 - B.601012 } OUTER  
 B.601015 - B.601020 }  
 B.602044 - B.602084 INNER

BATCH 1 VEHICLE - MARK 1 BOGIE  
DAVIES & METCALFE EQUIPMENT

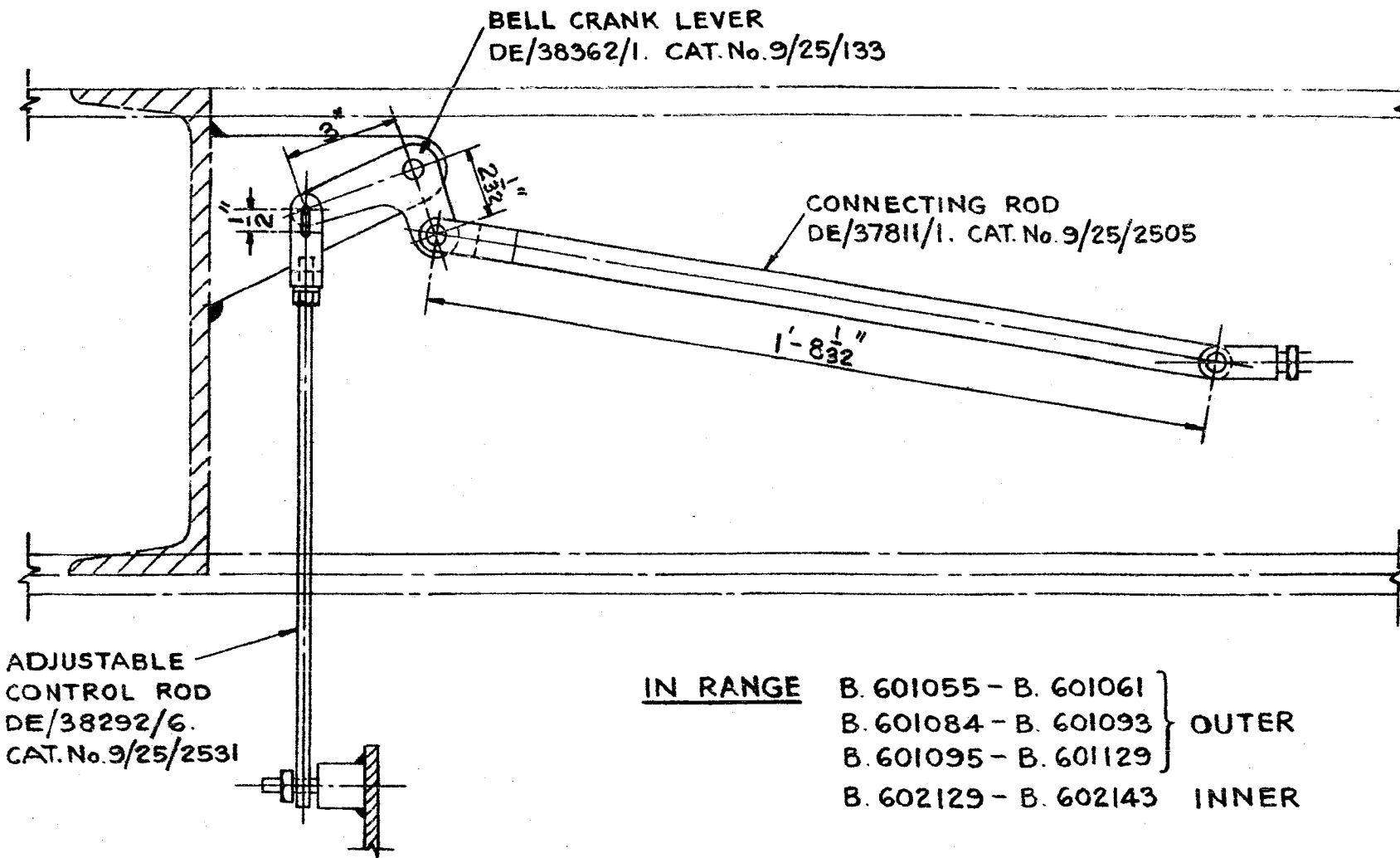
APPENDIX 'A' SHEET NO. 1  
 TO STANDING ORDER FPM. 20F  
 ISSUED : 7.1.71 .



<u>IN RANGE</u>	B. 601003 - B. 601009	}	OUTER
	B. 601013 - B. 601014		
	B. 602003 - B. 602043	INNER	

BATCH I VEHICLE - MARK I BOGIE  
WESTINGHOUSE EQUIPMENT

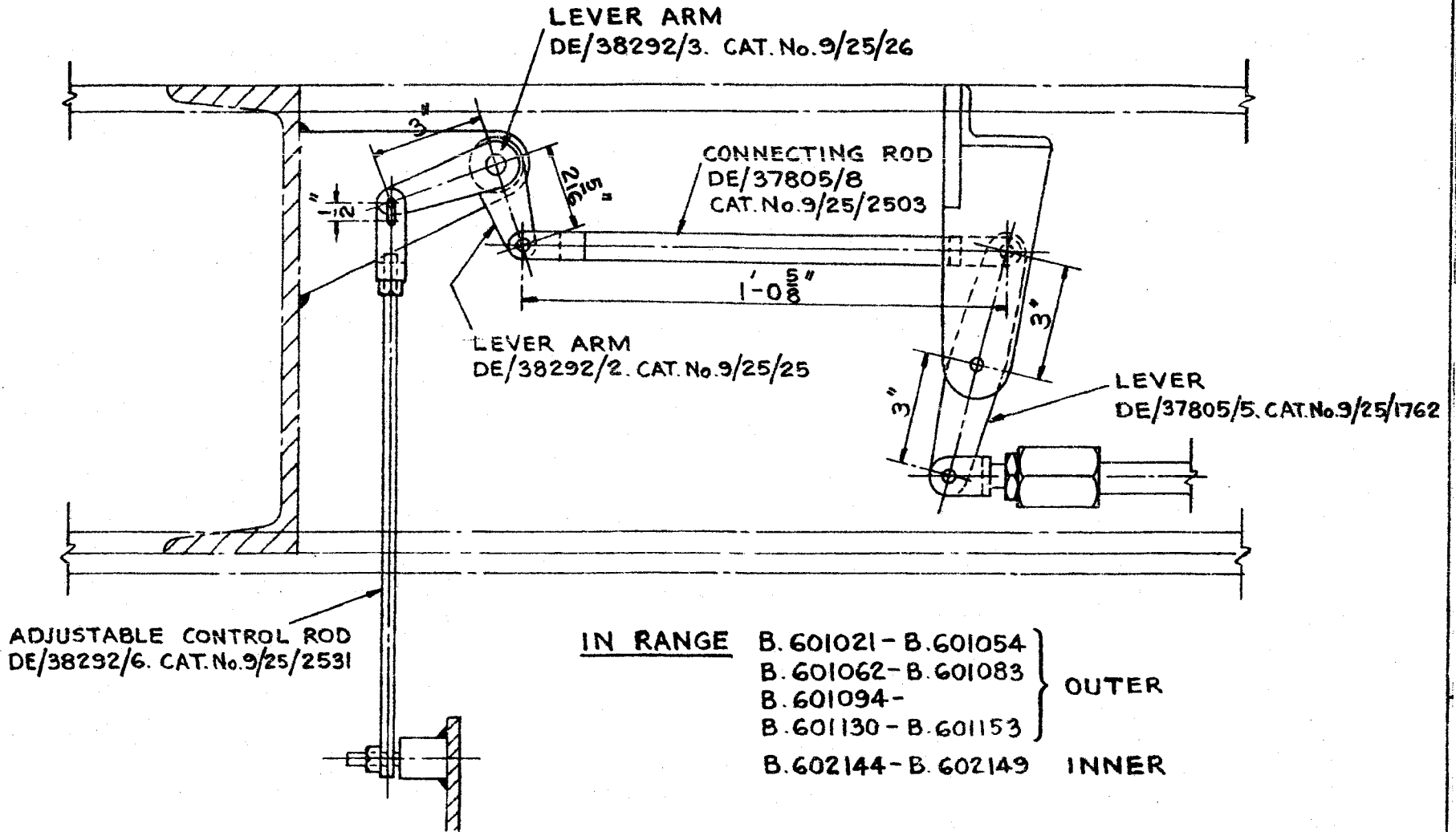
APPENDIX 'A' SHEET NO. 2  
 TO STANDARD ORDER FORM 207  
 ISSUED : 7.1.72.



<u>IN RANGE</u>	B. 601055 - B. 601061	}	OUTER
	B. 601084 - B. 601093		
	B. 601095 - B. 601129		INNER
	B. 602129 - B. 602143		

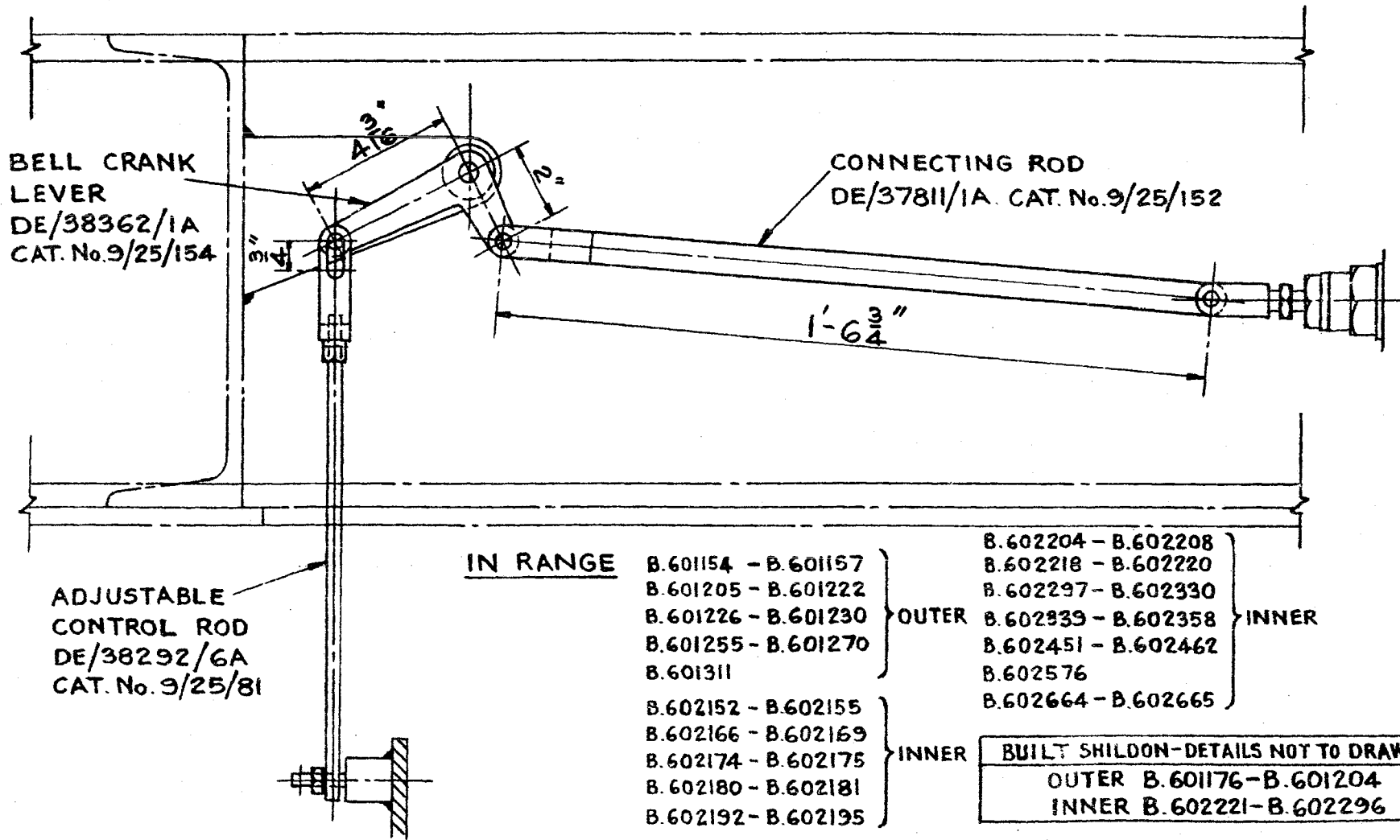
BATCH 2 VEHICLE - MARK 2 BOGIE  
DAVIES & METCALFE EQUIPMENT

APPENDIX 'A' SHEET NO. 3  
TO STANDING ORDER FSM. 20F  
ISSUED : 7.1.71 .



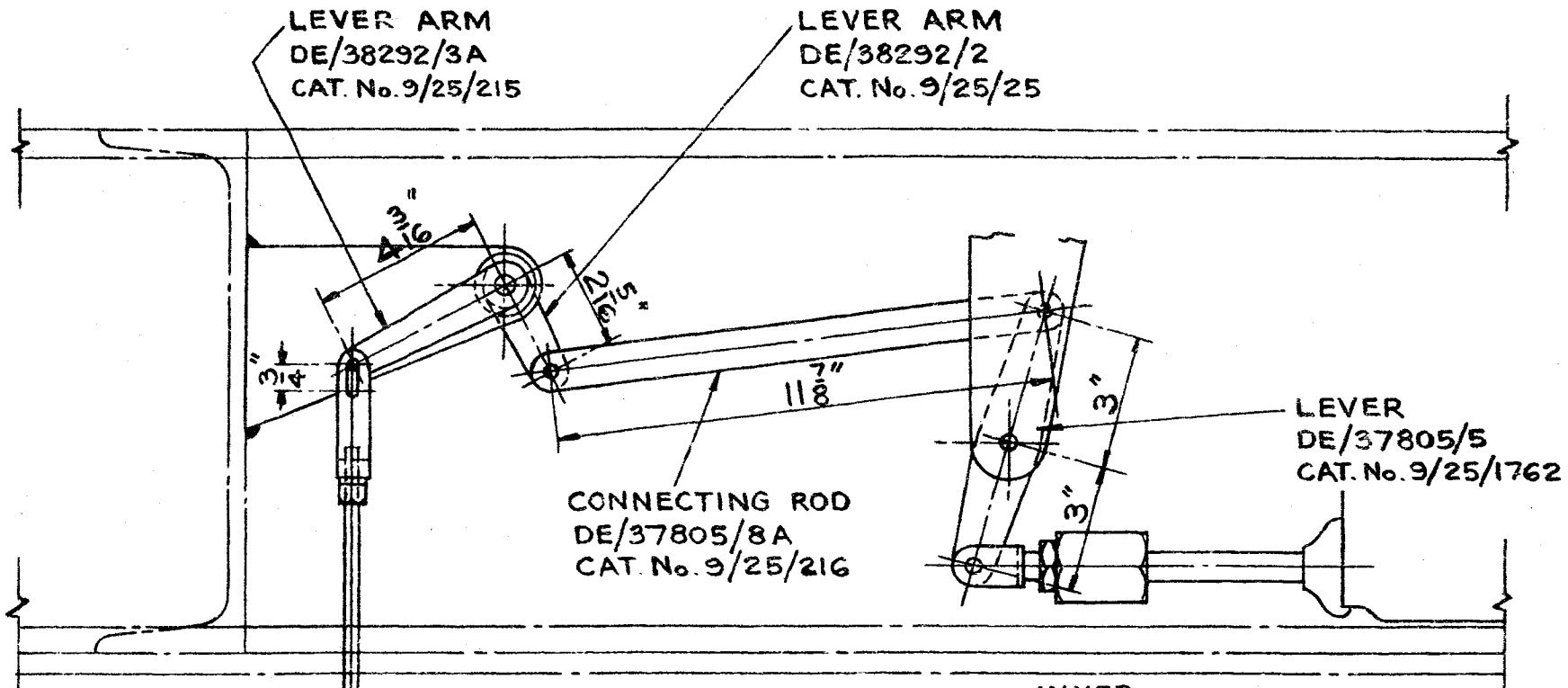
**BATCH 2 VEHICLE - MARK 2 BOGIE**  
**WESTINGHOUSE EQUIPMENT**

APPENDIX 'A' SHEET NO. 4  
NO STANDING ORDER FSM.20F  
ISSUED : 7.1.71



**BATCH 2 VEHICLE - MARK 3 BOGIE**  
**DAVIES & METCALFE EQUIPMENT**

ATTACHED 1/1 SHEET NO. 5  
TO STANDARD ORDER FORM 20F  
ISSUED : 7.1.71.



ADJUSTABLE  
CONTROL ROD  
DE/38292/6A  
CAT. No. 9/25/81

**IN RANGE**

- B.601158 - B.601175
- B.601223 - B.601225
- B.601231 - B.601254
- B.601271 - B.601310
- B.601312 - B.601328
- B.601351 - B.601369
- B.601392 - B.601393

} OUTER

**INNER**

- |                     |                     |
|---------------------|---------------------|
| B.602150 - B.602151 | B.602577 - B.602614 |
| B.602156 - B.602165 | B.602633 - B.602647 |
| B.602170 - B.602173 | B.602649 - B.602663 |
| B.602176 - B.602179 | B.602692 - B.602693 |
| B.602182 - B.602191 | B.602695            |
| B.602196 - B.602203 | B.602698 - B.602701 |
| B.602209 - B.602217 | B.602718 - B.602721 |
| B.602331 - B.602338 |                     |
| B.602359 - B.602450 |                     |
| B.602463 - B.602575 |                     |

BUILT SHILDON-DETAILS NOT TO DRAWING
OUTER B.601336-B.601345
INNER B.602772-B.602811

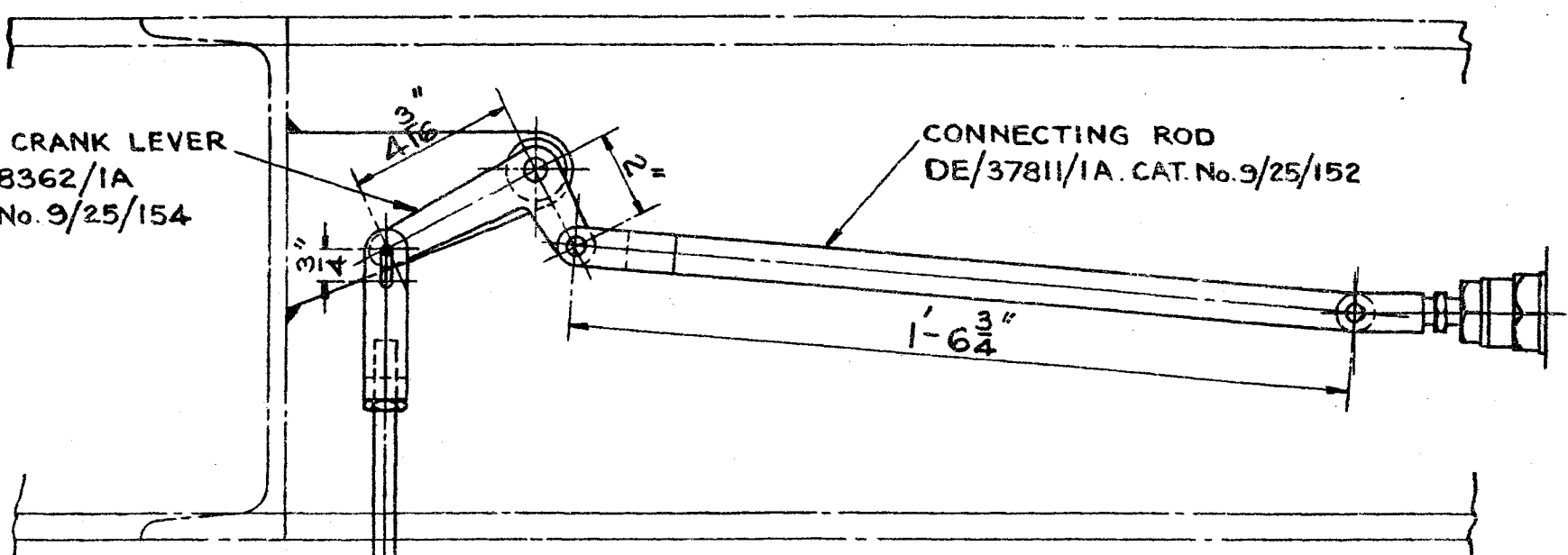
**BATCH 2 VEHICLE -- MARK 3 BOGIE**  
**WESTINGHOUSE EQUIPMENT**

APPENDIX 'A' SHEET NO. 6  
NO STATING ORDER PSM.20P  
ISSUED : 7.1.71



BELL CRANK LEVER  
DE/38362/1A  
CAT. No. 9/25/154

CONNECTING ROD  
DE/37811/1A. CAT. No. 9/25/152



IN RANGE  
(FL/I BOGIED VEHICLES ONLY)

IN RANGE  
(MARK 3 BOGIED VEHICLES ONLY)

- B.601454 - B.601469
- B.601472
- B.601474 - B.601481
- B.601483 - B.601527

OUTER

- B.601329 - B.601335
- B.601346 - B.601350
- B.601370 - B.601381
- B.601447 - B.601448

OUTER

- B.602912 - B.602914
- B.602916 - B.602920
- B.602922 - B.602924
- B.602926
- B.602928 - B.602932
- B.602934 - B.602935
- B.602937 - B.602971
- B.602973 - B.603021

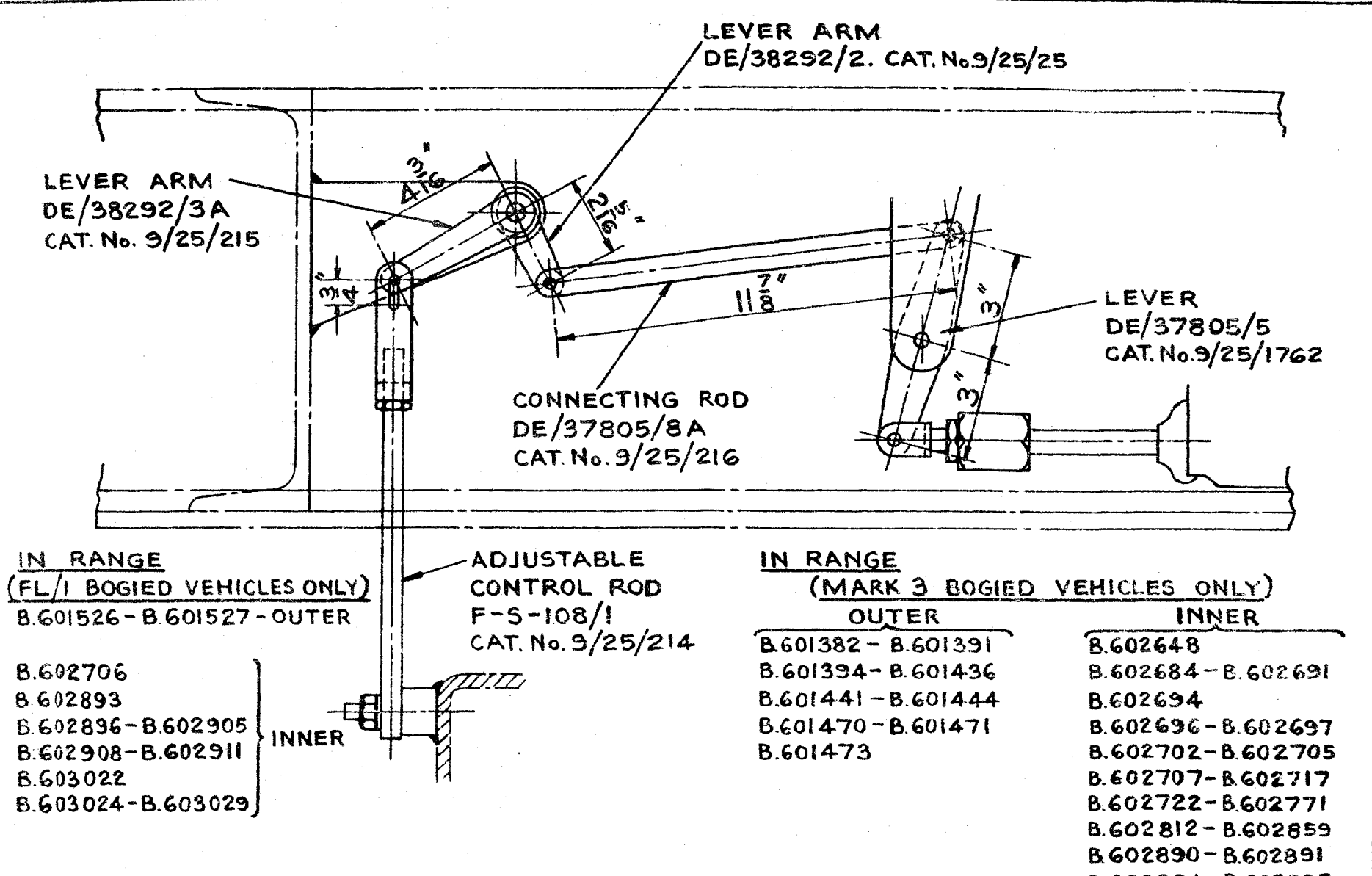
INNER

- B.602615 - B.602632
- B.602666 - B.602683

INNER

ADJUSTABLE  
CONTROL ROD  
F-S-108/1  
CAT. No. 9/25/214

BATCH 3 VEHICLE - MARK 3 BOGIE & FL/I BOGIE  
DAVIES & METCALFE EQUIPMENT



IN RANGE  
(FL/I BOGIED VEHICLES ONLY)

- B.601526 - B.601527 - OUTER
- B.602706  
B.602893  
B.602896 - B.602905  
B.602908 - B.602911  
B.603022  
B.603024 - B.603029
- INNER

ADJUSTABLE  
CONTROL ROD  
F-S-108/1  
CAT.No. 9/25/214

IN RANGE  
(MARK 3 BOGIED VEHICLES ONLY)

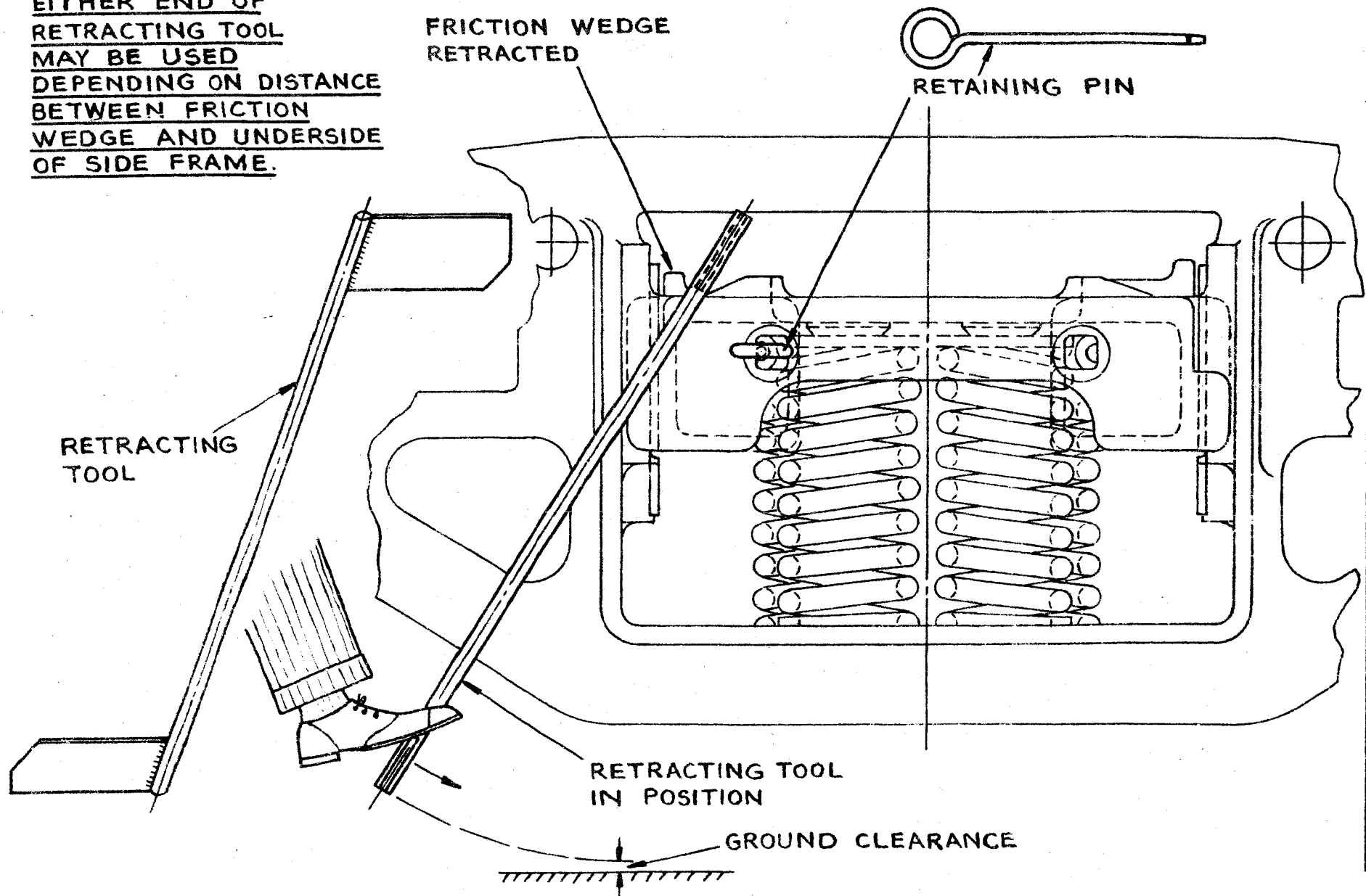
- |                     |                     |
|---------------------|---------------------|
| <u>OUTER</u>        | <u>INNER</u>        |
| B.601382 - B.601391 | B.602648            |
| B.601394 - B.601436 | B.602684 - B.602691 |
| B.601441 - B.601444 | B.602694            |
| B.601470 - B.601471 | B.602696 - B.602697 |
| B.601473            | B.602702 - B.602705 |
|                     | B.602707 - B.602717 |
|                     | B.602722 - B.602771 |
|                     | B.602812 - B.602859 |
|                     | B.602890 - B.602891 |
|                     | B.602894 - B.602895 |
|                     | B.602921            |
|                     | B.602925            |
|                     | B.602927            |

BATCH 3 VEHICLE - MARK 3 BOGIE & FL/I BOGIE  
WESTINGHOUSE EQUIPMENT

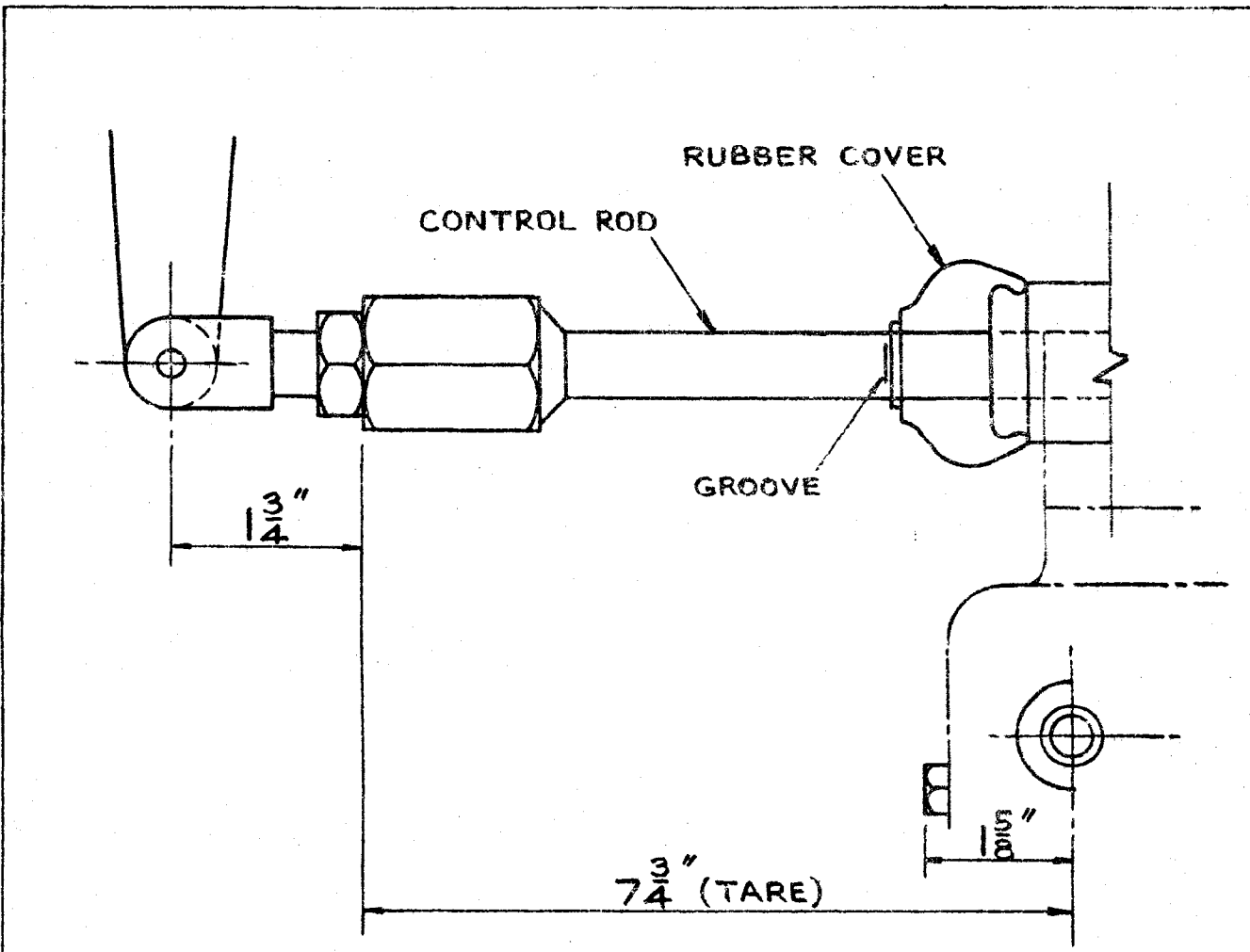
APPENDIX 'A' SHEET NO. 8  
 TO STANDARD ORDER PS1.20P  
 LISTED : 7.1.71

NOTE.  
EITHER END OF  
RETRACTING TOOL  
MAY BE USED  
DEPENDING ON DISTANCE  
BETWEEN FRICTION  
WEDGE AND UNDERSIDE  
OF SIDE FRAME.

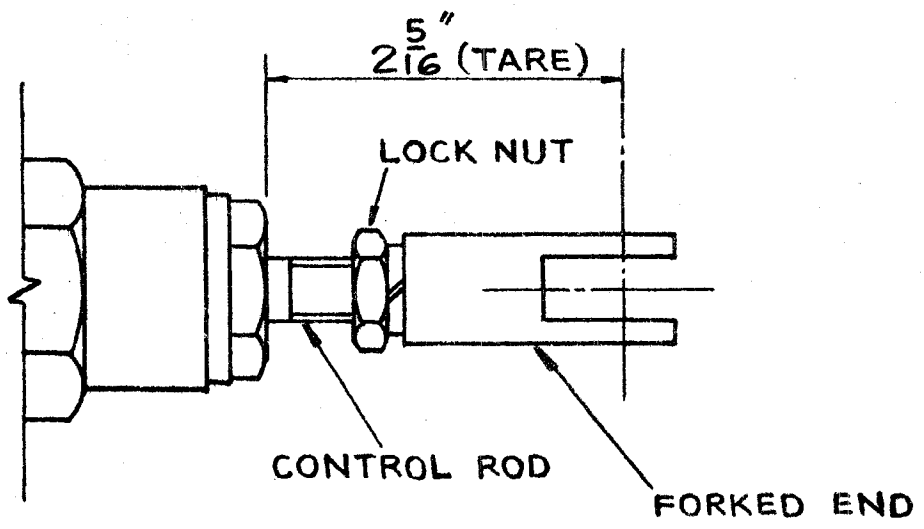
HARDWOOD PACKING MAY BE USED BETWEEN FRICTION WEDGE AND  
RETRACTING TOOL IF THERE IS INSUFFICIENT GROUND CLEARANCE.



APPENDIX 'B'  
TO STANDING ORDER FSM. 20F  
ISSUED : 7.1.71



WESTINGHOUSE VARIABLE LOAD VALVE



DAVIES & METCALFE VARIABLE LOAD VALVE